

## CASE REPORT

### **Murray Hill Medical Group, PC “PAPERLESS OFFICE WITHIN SIGHT” Jeffrey P. Friedman MD, FACP**

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#### ABSTRACT

An internal medicine practice grows from four to thirty physicians in ten years, and moves toward a paperless office by transferring clinical, administrative, and customer service functions from labor-intense staff to computers by changing one function at a time. Financial and clinical care improvements have occurred at each step, and superior customer service is now in sight with an internet-based patient access program.

#### INTRODUCTION & PRACTICE DESCRIPTION

Murray Hill Medical Group, PC, founded in 1992 by four partners who hired two associates, initially employed eight staff, including two lab techs that operated an in-office laboratory. The facility provided one exam room per doctor. All staff was shared, and the office staff was “generalists” performing the full range of front and back office functions, e.g. making appointments, billing, etc. The office employed no medical extenders. Our initial electronic capacity consisted of a simple electronic billing package, which we purchased from a small local software vendor/retailer.

In subsequent years the practice grew rapidly, adding more partners, associates, subspecialties, procedures, and more space. We also upgraded to a national brand practice management system (PMS) with electronic scheduling and began converting our office staff “generalists” to “specialists” in better-defined business functions.

By 1998 we had grown to seventeen physicians and were wrestling with all the organizational problems related to such rapid growth and a large complex operation. That year NYU Medical Center, our academic affiliate, decided to beta test an Electronic Health Record (Logician) and we agreed to serve as a “private practice test site,” which in turn enabled us to acquire EHR software without the initial capital outlay to purchase it. We did have to pay for hardware upgrades, training, interface development, and the annual service contact.

In 2001, we added a Letter/Lab/Mail Merge module and an Internet Scheduling module interfaced with our EHR. We built this module with a local software developer and have now expanded it to include online refills and referrals. We are adding a new Practice Management System in 2005, as well as adding online bill paying and patient access of lab results through secure email..

The following are Murray Hill patient characteristics: 95% have Internet access, 25% have Medicare, 15% are indemnity-insured, and the remaining 60% are “fee for service” managed care patients. None of the patients are “capitated.”

Today, after thirteen years of growth and aggressive use of information technology, our physician incomes are significantly above national averages, our employee/physician ratio is down to 2.3 FTEs, and our practice overhead for 2004 has been reduced to 39% of receipts.

#### DISCUSSION

Early on our practice identified four strategic objectives, which in turn motivated us to look for improvements, each of which culminated in the conversion of a manual process to a computer-based solution:

1. Create high income and increasing productivity. Recognizing that income generation depends heavily on physician productivity, we knew that to see more patients we needed to increase our efficiency in each patient encounter. Specifically, by speeding up information retrieval, treatment, and follow-up planning, we could perform certain tasks quicker and thus increase productivity:
  - Efficiency in documentation of E/M coding

- Quick Drug interaction information
- A quick refill process
- Automated recalls
- Automated preventative reminders
- Less wasted time looking for charts, papers, etc.

2. Reduce expenses. Operating in a location (Manhattan, NY) with perhaps the highest overhead and one of the heaviest concentrations of physicians in the country, it was clear that to grow and prosper financially we had to cut overhead expenses to a minimum. If we automated some business functions, staff reductions were conceivable. We aimed at the Telephone, Lab, Billing, and Filing functions to reduce staffing costs.

3. Achieve consistent, excellent patient care. As the number of practitioners grew, we needed to ensure that each practitioner was equipped with tools that would facilitate excellent, measurable care to each patient. Additionally, we needed to ensure that each practitioner was charging appropriately and consistently. Specifically, we wished to:

- Measure Quality Assurance and Utilization
- Improve Disease Management
- Optimize payment

4. Need to improve the quality of our personal and professional lives, specifically the burden of taking call. It seemed that an early goal could be to allow on-call physicians to access medical records remotely.

Beyond these four circumstances, and over time, we began to conceive of how the Internet might be used to further reduce staff costs, increase patient communication, and improve scheduling and other task-oriented frustrations

## **PROBLEM IDENTIFICATION AND AMELIORATION**

The process we use to evaluate priorities and accomplish practice improvement, including investigating electronic tools, is that the practice governance group establishes initiatives to investigate potential solutions to problems, concerns, or ideas of practice partners. A practice partner/associate is charged with investigating the concern or idea and reporting findings and recommendations to the governance group. This solutions partner is then authorized to assemble a work group of appropriate practice personnel. All partners are encouraged to participate, and business, implementation, budget, and work plans are subsequently approved by the governance group.

Our attempts to “modernize” using computerized solutions are guided by consensus among the partners that: 1) We are committed to investing time and money now for our future benefit. 2) We approach changes in practice management as we would a “sick patient”, i.e. using deductive reasoning to understand the differential diagnosis of problems to improve our professional lives. 3) We establish reasonable game plans and stick with them. 4) Whenever possible, we change one variable at a time. Additionally, our stated goal for investing in technology is to use innovations to increase office efficiency, to increase revenue and decrease overhead, to improve the quality of patient care, and/or to increase patient satisfaction.

## **“PAPERLESS VISION”**

While we have approached implementation on an incremental basis, requiring each new functionality to be fully justified on its own merits, we have been guided by a broad “vision” of a virtually paperless office. Its foundation is an Electronic Health Record (EHR) fully integrated with a Practice Management System. To this base we added the capacity to scan documents into the EHR (inside documents, e.g. consents, HIPAA info, living wills and health care proxies, home b/p and glucose results, and outside documents e.g. consults, x-ray reports). Eventually all necessary test orders and result reporting were integrated and are performed electronically. This includes full integration with our own office laboratory as well as outside labs. Message documentation, phone notes, refill requests, communication between staff and providers, and faxing also are part of our “Paperless Vision.”

## **CONVERSION & IMPLEMENTATION**

Our conversion and implementation process has been unremarkable because we follow standard vendor guidelines such as soliciting advice from other practices, visiting installed sites of selected vendors, and carefully planning training of staff and physicians. During our initial implementation of EHR, training consisted of three-month, universal, formal sessions conducted outside of patient care time, with designated “practice time” for each user. In addition to formal classroom training, physicians were required to “pre-load” patient charts. Each physician picked

his/her most active patients (frequent returning patients with multiple problems and medications) who were coming in during the “first two live weeks.” Preloading consisted of “creating” the patients chart, entering only diagnosis, medications, and vaccinations. This preloading process not only enabled physicians to become comfortable with using the software under less stressful conditions than a normal workday, but it also ensured that a basic electronic record would already exist when physicians needed to begin recording new patient visits after the “go live” date, thus minimizing adverse impact on productivity and the high physician frustration levels that have sometimes derailed EHR implementation in other practices. Temporary workers, primarily medical students, created additional patient charts.

“Go Live” was a staged three-month process during “slow season”—June through September, during which time vacation was restricted. Several physicians at a time were scheduled to begin using the e-chart, to allow ample teaching assistance from the vendor’s representative. Office time was cut in half for the first one-two weeks for the “live” physicians, and over-flow coverage was arranged for each physicians “over-flow” patients. Additionally, physicians were required to “pre-load” their next day patients before going home the night before.

## **BENEFITS OF USING THE ELECTRONIC MEDICAL RECORDS**

With the introduction of the integrated EHR, we accomplished our major original goals for “institutionalized” use of electronic practice tools, and we had a “platform” for continuing our mission to eliminate paper and the processes associated with it.

Today we do realize more net income from patient management, primarily through efficiency in documentation and E/M coding, quicker DRUG interaction information, quick refills, automated recalls and reminders, and less wasted time looking for charts.

Additionally we continue to reduce personnel and other expenses. In fact, by reducing reception/telephone, lab, billing, and filing staff, our overhead has decreased to 39% of gross income, far below national standards, and the reciprocal has been increased physician income. We were able to accomplish this through judicious use of the EHR, coupled with innovative add-on products (see below).

Patient care also continues to improve because in the ease of following practice guidelines, attention to measuring and improving Quality Review and Assurance, and better disease management for our patients. Reductions in our “hassle factors” are also being accomplished, notably in physicians’ ability to obtain medical records remotely, thereby improving the care and quality of on call. Quality care also reduces the practice’s liability.

## **“ONE THING LEADS TO ANOTHER”: CONTINUOUS IMPROVEMENT**

Within five years of establishing the practice, we had identified numerous situations in practice operations and in management, which could be corrected or improved. For example, the process of using the Practice Management System for electronic appointment scheduling still required labor intensive manual operations: receiving telephoned appointment requests, searching for appointment slots, reviewing requests, calling patients back, and conducting confirmation and reminders. Our frequently backlogged phone system for appointments contributed significantly to an unacceptable no-show rate, patient frustration, partners’ sense that they were not “busy enough” or experiencing “too much down time,” and to general dissatisfaction with patient communication and education.

If it were possible for our patients to make their own appointments online, just as they would if they were buying theater tickets or making airline reservations, many of these problems would disappear. However, we quickly discovered that no cost effective solutions existed to allow direct electronic scheduling by our patients. Existing vendor solutions we investigated involved patients submitting electronic requests for appointments, which meant appointments staff still had to receive the request, find an available appointment, and confirm the appointment, and/or maintain multiple appointment books and thus increase the risk of double booking. Because our appointment scheduling process was not fully integrated with other computerized systems, i.e., Internet, EHR, and PMS systems; we were effectively wasting staff time and not optimizing income.

## INTERNET INTEGRATION

One of our partners investigated designing an Internet Patient Appointment Scheduling Program. Calling on a local software developer, an ad hoc workgroup defined the desired characteristics for such a program: It would need to be fully integrated with our electronic system and require no human intervention. Other key objectives included:

- Lower actual staff numbers
- Increase bookings
- Reduce no-shows
- Provide multiple email reminders to patients
- Provide 24/7 views of available appointments
- Ensure patient data authentication
- Ensure effective communication with patients during the appointments process
- Update demographic and other patient data on our PMS
- Enhance patient (customer) satisfaction
- Reduce complaints about the phone system (by reducing phone call volume)
- Provide for prescription refills and referrals
- Be expandable to provide eventual on-line patient visits via email

A sample web page was designed which allowed patients to: Schedule a new appointment, view or change an appointment, change their email address and password, and receive messages from the practice. A subsequent section was developed to further reduce phone volume and included integrated prescription refills and referrals, as well as account balance checking.

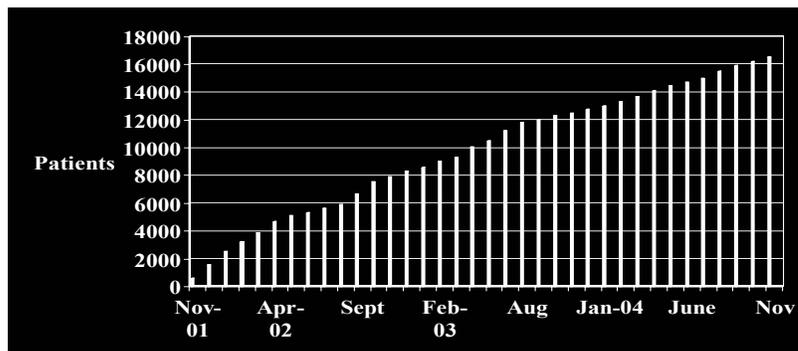
During our work on this “module” we had to address such additional critical issues as:

- Security
- Patient Authentication
- Confidentiality
- Denying Unauthorized Access
- Informed Consent
- Communicating Highly Sensitive Subject Matter
- Dealing with Emergency Subject Matter
- Ensuing Medical Records Confidentiality

The resulting interactive patient self-scheduling software today resides on Murray Hill’s web site and is fully integrated with the practice’s EHR scheduling module. The system characteristics include the following:

- Patients are able to view, schedule, reschedule and cancel existing appointments on their own
- Automatic confirmation emails go out when the appointment is made and at 3 days, and 1 day prior to appointment, and the practice receives confirmations that the patient has received these reminders, thus creating a “no excuses” environment for any subsequent no shows.
- Doctors customize the confirmation emails by appointment type to provide instruction on fasting, taking medications, colonoscopy prep, cancellation/no show fees, etc. -- thus eliminating patient misunderstandings and additional phone calls regarding the visit.
- Patients automatically receive emails telling them when refills and referrals are complete
- Patients can view their account balance before the appointment
- Once the system became operational it was made available to all the practice’s physicians and their patients who voluntarily “opted in” to use it. While acceptance by physicians at first was slow, almost all of them quickly were won over by the obvious productivity benefits, i.e., eliminating down-time on Monday mornings due to missed or cancelled appointments, reduced no-shows during the week, and a steady, filled schedule. Patients have readily accepted this new method of communicating with the practice, as demonstrated by the following chart tracking the dramatic growth in patients using the on-line appointments system since it was first introduced in late 2001.

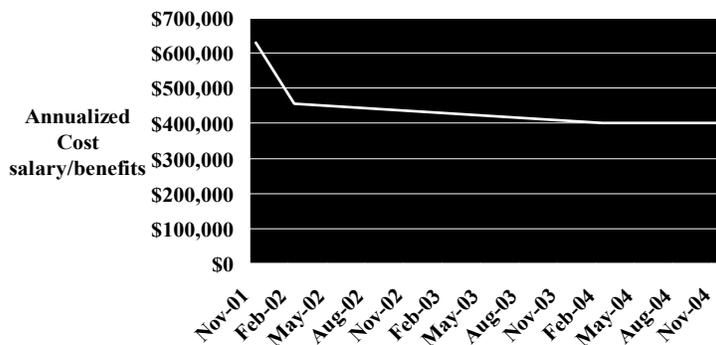
## Patient Registrations Using On-Line Appointments



Perhaps the most dramatic impact has been seen in overhead expense reductions. For a practice located in a high cost area like Manhattan such expense savings have translated into substantial improvements in the practice's bottom line. As a growing percentage of patients chose to make their own appointments on-line about 30% fewer appointments staff were needed, resulting in the personnel savings shown in the following table.

## Savings in Phone Staff

MHMG,PC



The major benefits Murray Hill derived from the Internet appointments system can be summarized as follows:

- Appointments scheduled overnight have increased virtual office time by 380%
- An average of 3 early Monday morning appointments each month are filled over weekends
- 30-40% of all appointments are made on-line
- 95% of on-line appointment users do not go back to the phone
- No-show rate has decreased to less than 1%
- Internet appointments continue to increase in a linear fashion
- Decreased phone time has meant more time for staff to do other office tasks
- Appointments on-line saves staff time by automatically performing repetitious recalls and records recall notes
- Staff time is saved on refills and referrals

- Patient satisfaction and retention have increased significantly
- Annual savings over \$238,000 achieved in staff/benefits.
- Practice overhead as a percent of receipts has been reduced to 39% as a result of both the patient self-scheduling system and the effective adoption of other information technology.

## **FUTURE**

By conscientious and consistent application of information technologies to improve practice operations over several years Murray Hill has succeeded in driving down practice overhead to an extraordinarily low level. Meanwhile, the physicians are convinced that technology also has helped them achieve improved clinical quality. The practice undoubtedly will continue seeking new ways to use technology in its on-going assault on overhead expenses. However, with pay-for-performance on the horizon, a new emphasis will be placed on using EHR to record, report, and continue enhancing clinical quality. The practice's vision for the future includes the ability to conduct (and be reimbursed for) internet-based clinical interactions that will electronically monitor and appropriately communicate with patients regarding chronic disease care (e.g., hypertension, diabetes) as well as non-urgent problems, track the effects of treatment, and promote follow-up behavior therapy (smoking, diet).