Davies Recognition Program 2004

Section A. Identifiers

1. Name and Title of Submitter: Alice Loveys, M.D.
2. Practice Name: Pediatrics @ the Basin
3. Address: 510 Kreag Road
4. City: Pittsford   State: New York   Zip Code: 14534
5. Telephone: 585-218-9560   Fax: 585-586-4984
6. E-mail: drloveys@pedsbasin.com   Website: www.pedsbasin.com
7. Physicians in the Practice: Number (2)   Full Time Equivalents (1)
   Physician Assistants in the Practice (1)   Full Time Equivalents (1/10)
   Additional Staff: Office Manager (1)   Full Time Equivalents (1)
                    Nursing (4)   Full Time Equivalents (1 & 1/10)
                    Billing   (2)   Full Time Equivalents (1/2)
8. Commercial agreements: We have a commercial agreement with Docs, Inc. makers of our EHR, SOAPware. We are a sponsor for the pediatric subsection. We share our customizations of templates and reports unique to pediatrics. SOAPware will sell these as a module. See attached agreement.
9. Annual Number of Patient Encounters: 4200
10. Members of the EHR implementation team: Janet Cranshaw. M.D., Alice Loveys, M.D., Barbara Ball, Richard Harby, and David Bay at Pediatrics @ the Basin. We collaborate with our sister office, Mendon Pediatrics and their implementation team including Donna Meyer, M.D. and Greg Meyer.

Section B.

The Organization

Pediatrics @ the Basin is a private practice with one location. We have 1500 patients.   We are located in the suburban area of Rochester, NY.   Ninety-five % of patients belong to a Health Maintenance Organization.   We opened in January of 2002. Both physicians in the office are working mothers and coordinate office hours to provide full time coverage for the office.

We share call and weekend patient care with , Mendon Pediatrics, and Goodman Pediatrics.   Goodman Pediatrics serves a primarily urban population. They have 4600 patients and opened in 1929.   Mendon Pediatrics serves a suburban/rural patient population. They have 2400 patients and opened in 1990.

Management

a.   Business Objective - Our business objective was more personal than financial. We wanted to create an office with a calm, unrushed atmosphere and provide thorough medical care. We both are working mothers and we needed a better balance of

professional and home life. We had to be financially healthy as well, but monies were not our driving force. We have been fortunate to create an office that has not only exceeded our personal goals, it is financially solid as well. We could not have done this without an electronic health record system.

Both Drs. Cranshaw and Loveys had been in private practice for 8 years prior to the opening of Pediatrics @ the Basin. Dr. Cranshaw was new to the area, having moved from St. Louis. She was an employee of a practice there. Dr. Loveys had been an employee of a private practice locally. We are both mothers of young children, whose ages range from 6 to 11 years old.   The practices we left were high volume (30 – 40 patients per day) paper chart practices. There did not seem to be enough time to adequately evaluate patients, document the care given and provide detailed enough instructions for care to the patients. A semi-complicated patient needing even extra attention could back up your whole day. Notes from covering physicians were sometimes illegible or incomplete.   Sadly, even looking back at our own handwriting, it would take time to decipher our intent.   We always had a stack of charts to do at the end of the day. There seemed to be little time devoted to developing better patient care and limited ways to effectively apply our continuing medical education. At the end of the day, we went home to families eager for our time and attention. Even during the day, family life still called. There were school functions to attend, classes to participate in, and after school and summertime activities on a routine basis. Part of motherhood was and is anything but routine. Illness never happens at a time convenient for anyone, even doctor moms.   We envisioned an office with a calm, reasonably paced atmosphere with built in flexibility to account for the patient who needed more of our time. We need to work as a team to cover each other for professional or personal development and for those activities of our family life too precious to miss. We wanted to same to be true for our entire office staff. We needed an efficient, well organized office so no patient details slipped through any cracks and providers could feel confident all details of a patient's care were addressed and documented.

From a financial standpoint, if we were going to see patients at a reduced pace, we would have to be more efficient to be fiscally healthy. We anticipated being able to need less support staff than a typical paper office. Chart management is streamlined in the EHR setting.. All the charts reside on the server, obviating the need for paper charting supplies and storage space for those charts. No time is spent putting together charts, pulling charts, filing reports, or refilling charts. There is no time dedicated to the inevitable search for the missing paper chart. We do not have to pay for any transcriptions.

b.   Project Organization – The successful launch and development of our EHR was and is a group effort.

i.   Conversion of information of the paper charts to the EHR was done over a year's time. Nursing staff would pull paper charts for all patients to be seen the following day. They would enter the vital face

sheet information such as problem and medication lists, allergies, immunizations, and past medical and family histories.

ii. Customization of EHR - Physicians are responsible for customization of templates, reports and codes within the EHR. Customization is an ongoing process. We integrate community, state and national health guidelines into our templates. Our support staff (nursing, billing and front desk) provide input as well. Each physician spends approximately 1 hour a week doing this development.

iii. Hardware and software maintenance - We contract with an independent information technology support person, Rick Harby. Rick makes recommendations for hardware purchases, software purchases other than our EHR and assists in the development of EHR interfaces with outside systems. (labs/radiology, etc.).

iv. Practice Management System - The developer of our PMS, Dave Bay, supports the PMS and its interface with the EHR.

v. As much as we are a team in our office, we are all accountable for its success.

c. EHR selection - Dr. Meyer, Dr. Loveys and Greg Meyer reviewed several EHR systems before choosing our current one. Dr. Loveys was also on the University of Rochester Medical Center's Ambulatory Information Services Committee, which also reviewed current EHRs available. The University of Rochester chose to do a pilot with Allscripts but they do not make a system for the small office. We considered several factors before choosing an EHR system.

Most EHR systems will share some common functionalities. Most all promise to allow for automated prescription and report writing. All have slightly unique organization patterns to the chart but provide areas for medications, problem lists, allergies, progress notes and incoming patient data (labs, letters from specialists, etc.). Ability to access a system from outside the office is more dependent on internet access rather than a function within the EHR. Features that set some EHR systems apart include but are not limited to:

i. Company - how long in business, private or publicly held.
ii. Cost – initial licensing and ongoing support costs.
iii. Hardware requirements – type needed and purchasing requirements.
iv. Customizability - We evaluated the customization process such as who could initiate customizations, any costs associated with it, and who implemented it.
v. support – who provided support and any costs associated with it.
vi. development – plans the company had for further development of their system.
vii. modules and interfaces available.

Considerations are summarized in the table below.

EHR name/Components	Medent	Soapware
Licensing costs	Per work station	Per physician
On going support costs software	Billable at an hourly rate	Set cost per physician per year
Hardware costs/requirements initial outlay	Must purchase from Medent	Buy independently
Hardware costs for ongoing maintenance and support	Hourly rate via Medent only	Independent Information Technology Person
Practice Management/ Billing component	Must use Medent's billing product	Will interface with any Practice Management System
Training Costs	Hourly rate	Self study/ videos and books provided
Customizations	Must be requested of company and done by them at an hourly rate	Physician able to customize.
Costs to upgrade software	?	Part of support contract
Interfaces with other vendors	Only software approved and purchased through Medent	Modules available to interface with PMS, labs, equipment

Overall we thought the start up and on going support costs of Medent to be prohibitive. Charges for customizations could impede development of new or improved patient care protocols. SOAPware seemed to be reasonably priced and have the adaptability we were looking for.

Implementation

a.   Selected SOAP ware by Docs, Inc. for EHR and The Specialist for our PMS. The Specialist is the PMS used by our sister offices. Demographic and billing data can then be shared between offices. For hardware we chose PCs for each exam room and work station. We hired an independent contractor for hardware support. We purchased the EHR support module for technical support. Data access, data entry, decision support, workflow and communications, etc.) are addressed in the sections to follow.

b. Core Functions – Briefly describe how the system as
    implemented,captures, enables retrieval and dissemination of:

When a chart is opened, the medical summary is visible at all times. This includes
active and inactive problems, medications, allergies, surgeries and hospitalizations,
social history, tobacco and alcohol use, and other important notations. In pediatrics we
include immunization record and developmental history in this summary section.
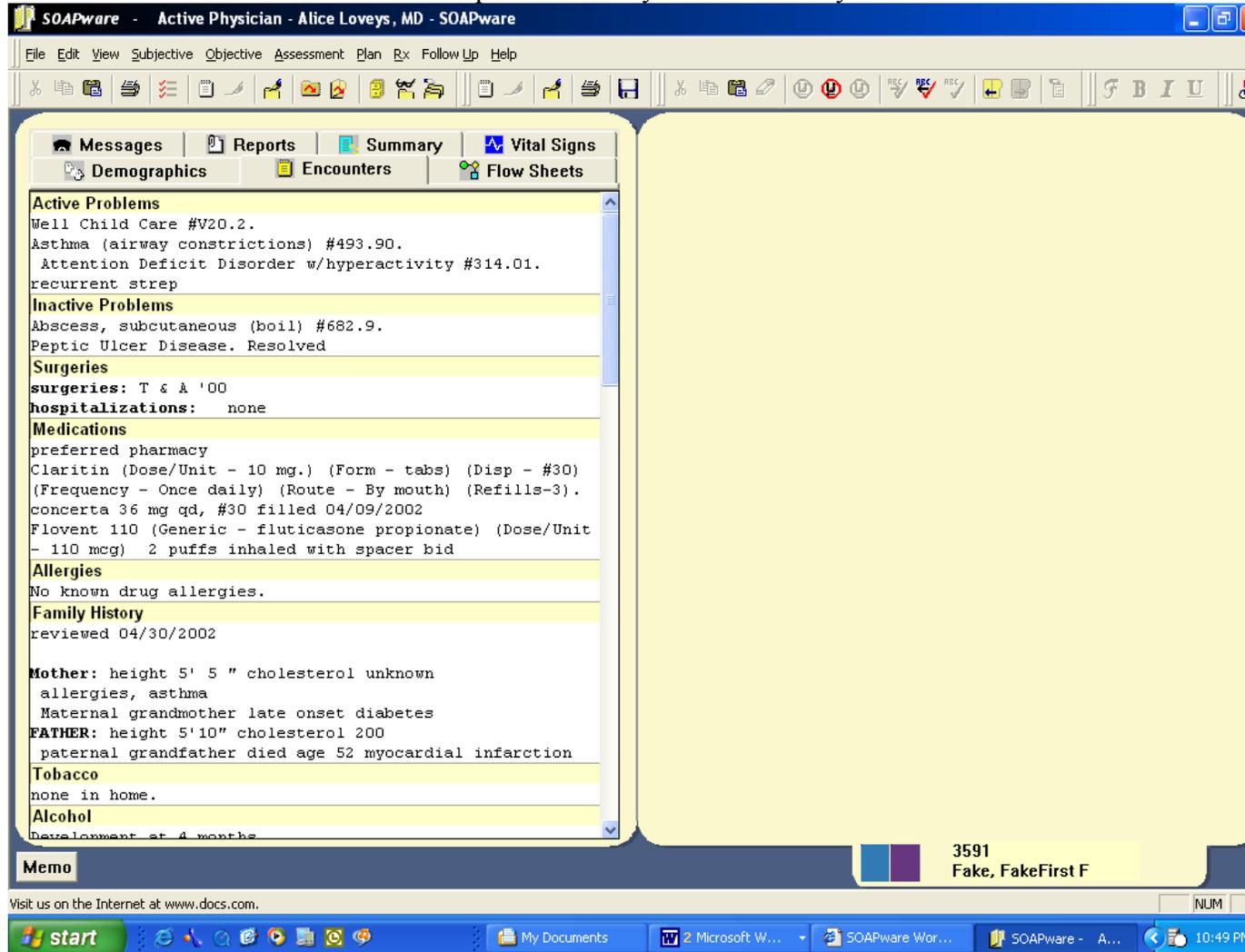
For each patient encounter – office visit, phone call, medication
refill – a new "page" is created.

Messages **Reports** **Summary** **Vital Signs**
Demographics **Encounters** **Flow Sheets**

Development at 4 months

Language: cooing, laughing, raspberries__.
Fine Motor: holds own hands__.reaches for objects__.
grasps rattle__.
Gross Motor: raises body on hands prone__. rolls F to
B__.supports weight on legs__.follows 180__.
Social: makes good eye contac
Developmental Teen.
social: good friends__.
sexuality: filled out confidential questionnaire__.
risk behaviors: filled out confidential questionnaire__.

development kid:
social: good friends__.

Interventions
DTaP: 3/1/92, 5/1/92, 7/1/92, 7/5/93
Polio: 3/1/92, 5/1/92, 7/5/93
MMR: 1/1/93, 2/1/96
Hib: 3/1/92, 5/1/9,2 7/1/92 7/5/93
HepB: 3/1/92, 5/1/92, 7/1/92
Varivax: 1/1/93, 11/27/02
Prevnar: 3/1/92, 5/1/92, 7/1/92, 7/5/93
Influenza:10/5/01, 4/1/02
Td:
old records received and reviewed
Social History
lives with mom, Mary (5/5/60)lawyer and dad, Paul
(9/22/58)Police officer. 2 siblings Steve (3/4/96) and Ava

lives with mom ( ) and dad ( ).

Memo

Visit Date 04/28/2004 22:51   **Age - 9**
Subjective
Objective
Assessment
Plan
Medications
Follow Up

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Our EHR came with prewritten templates for many common types of encounters. Templates provide a framework for history, physical, assessments and plans with quick easy to select toggle switches to record positives and negatives. We were able to easily modify these templates or create new templates to meet our needs. Nurses choose a template for common encounters; well child visits, common illness and injury visits, phone calls and medication refills. The nurse or receptionist who enters the encounter simply chooses which template to use.   More detailed history and physical can be entered and modified with the keyboard, but the templates save time and spare the provider duplicated effort. An example of an available template is shown below.

SOAPware - Active Physician - Alice Loveys, MD - SOAPware

Template Viewer - maliill

Subjective
Illness visit: here with mom, __. here with dad, __. other, __.
duration: < 24 hours, __. 1 - 2 days, __. 3 - 7 days, __. > 1 week, __. > 2 weeks, __.
__ fever.
__ runny nose.
__ cough. __ sore throat.
__ headache. __ earache.
__ vomiting. __ diarrhea.
__ decreased appetite.
__ disturbed sleep.
__ other symptoms.
Ill contacts: none, (+). household members, __. school, __.other, __.
Interventions: over the counter meds, (+).vaporizer, __.none, __.

Objective
non-toxic, (+). neck supple, (+).
EYES: sclerae clear, (+). **TMs:** tympanic membranes normal right and left, (+).
Nares: clear, (+).clear nasal discharge, __.cloudy discharge, __.no foreign body, __. boggy mucousa, __.
pharynx: moist, (+). pink, (+). red, __.
tonsils symmetric, (+). 1plus, (+). 2plus, __. 3plus, __. 4plus, __. absent, __. exudate, (-). post-nasal drip, __.
lymph nodes: anterior cervical: none, (+).mild, __.moderate, __.
  posterior cervical: none, (+).mild, __.moderate, __.
  supraclavicular: none, (+).
LUNGS: clear to auscultation without wheezes, rhonchi, or rales, (+).
CV: rrr, without murmur, rub, or gallop, (+).
ABD: normal BS, (+).Hyperactive BS, __.
non-tender, (+).tender diffusely, __.tender rlq, __. No splenomegaly, (+).No hepatomegaly, (+). No masses, (+).
skin: without rashes, (+).

Assessment

Plan
symptomatic care

Medications

Follow Up
as needed for changing symptoms or any parental concern.

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The patient's medical summary can be copied into each new encounter automatically, so that medication and problem lists are detailed in each encounter without having to enter the information each time.

Medications are compared with allergies and other medications to identify potential drug interactions or allergic reactions.

Radiology reports and outside correspondence, such as referral letters and emergency visits, are scanned into the "report" section of the chart.

Lab results from the lab we use most are entered directly into the patient chart by a computer interface we installed. Using a file transfer protocol and an HL7 interface, our server queries for lab results every 5 minutes, and when found, matches the patient by name and birth date and enters the data automatically into the patient's chart. As soon as the lab has a culture or blood test result, we have it. This saves time for our staff and for the lab and improves patient care. The new results all show up on our "to do" list as well, so we are alerted to new results as soon as they are available.

Labs can be input by hand or scanned in as well, if they are from labs not using the interface.

Some of the most useful and patient friendly features of the EHR involve the dissemination of clinical information. These include:

1.   Simple writing of letters - to specialists; to schools for medication administration, work or physical education excuse; to emergency departments for patients sent directly from the office; reminders to patients about lab work not yet done or visit reminders.
2.   Automatic saving of copies of these forms and letters to improve documentation and facilitate retrieval.
3.   One-click printing or faxing of prescriptions or immunization records. Pharmacists and school nurses appreciate the type written reports.
4.   Automatic saving of radiology or lab requests, so that ordered tests are not forgotten. A patient's chart cannot be refiled until the request is completed. This is a good safe guard for compliance.
5.   One-click printing of a personal medical history (problem list, medications, family history, allergies, etc), given to the patient or their family at each yearly physical exam. We review this information with the family at the time of the visit. This involves the family more directly in the care of the child and allows us to easily update their medical summary. Families keep a copy of this summary for their own records.
6.   One-click printing of instructions for care and follow-up at illness visits. This results in less call backs after hours.
7.   Patient care instructions are given to the patient and the caregiver, and saved in the record, and can be printed or faxed to schools or other health care providers in a few seconds.
8.   Routine preventive care and health maintenance items can be identified, such as screening for lead exposure, diabetic care follow up, cholesterol screening, etc. Each time the patient's chart is opened a reminder alert comes on the screen. Searches can be made of all the patients' charts to see who is due for influenza or tetanus vaccine, cholesterol, or other scheduled items.
9.   We can't fully close, or refile the chart, until all the encounters, labs, pending orders, scanned documents, etc. have been signed off on. This prevents many oversights, again improving medical care.
10.   We have been able to generate reports with full medical histories for patients that needed emergency transport from our office due to respiratory failure. The reports go to the emergency room with the patient so all caregivers have complete medical information.

        c. Interface to billing – Providers generate a super bill from the patient encounter. They select the level of service and any associated procedure codes from a pull down menu. We have the option to print the super bill or post it back to our practice management system electronically. We opt to print the super bill and enter the information manually into our PMS so our billing persons can double check our choices for completeness. For example with a diagnosis of strep throat,

do we remember to enter the procedure code for a rapid strep test or at a well child check which particular immunizations did we include.

d.   Technical infrastructure – Our EHR is a data base system that uses Microsoft access data bases.   The office has a hardwired network with a Linux server. We use PC's in each exam room, at each doctor's desk, the nurse's station, front desk and billing desk. Each station also has high speed internet access. There are two network printers and two local printers at the doctors' desks Our EHR offers several modules for interfaces with a variety of products, including practice management systems, local laboratories, spirometers, EKG machines, and other data collection tools.   At our office, we interface with the local laboratory, ACM. We use a HL7 interface program as well as a FTP program to receive results into the patients' charts directly as described above. The local lab provided support for their part of the interface and the EHR vendor provided support for the development of this specific interface. Our IT person, Rick Harby, developed the use of an FTP program so that our server "talks" to the labs server to look for results every 5 minutes. We interface with our practice management system via a module called Docs Exchange. The vendor provided support for the development of this specific interface. We employ the interface for our spirometry and EHR as well. Reports from specialists that are faxed to us are viewed via our PC's image viewer and then cut and pasted into a patient's chart. Mailed reports are scanned into the chart. All letters to specialists, prescriptions, and patient forms are completed via the report writer section of the EHR. We back up data on site to a tape and a PC hard drive as well as transmission of our data offsite to an information storage server.

e.   System implementation – the conversion to EHR took about 1 year. As patients came in for a well child check, we would enter their paper chart face sheet information into the EHR. This included current medical problems, inactive medical problems, hospitalizations and surgeries, medications and allergies, immunizations, family history and social history.   Each new encounter from January 2002 was put into the EHR. We rarely needed to refer to the paper chart after that well child encounter.   Patients that were new to the practice had their data entered at their initial visit. Use of the EHR is somewhat intuitive if a person is familiar with Windows based PCs.   Usually two to three days of training is required for the nuances of the EHR. The physicians are available for support questions.
f.   Current State – All staff at the office use the EHR for every type of patient encounter be it phone, acute illness, or health maintenance visits. We utilize internet right in the room for patient education and drug information. We also have a web site and allow non-confidential email communication. www.pedsbasin.com . We enjoy the interface with one local laboratory and another has approached us to do a similar set up.

Value
     a. Success in meeting objectives -   We have been very fortunate to have exceeded our expectations for the office.   We have had significant changes in

work flow that positively impact our face to face patient time. We are able to more completely and accurately record patient encounters and this information is organized and legible for retrieval by any health care provider.   We have an effective way to apply new clinical information. Our best example is with management of patients with asthma.

We are fortunate to have the Rochester Health Commission in our community. This committee is made up of physicians who represent 18 local insurance companies, IPAs, and hospitals. They provide community wide clinical guideline initiatives. We used the provide guidelines to create templates for the initial evaluation and follow up care of patients with asthma.

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■ Template Viewer - masi
Asthma review of systems:
trips to the ED in past year,__.
oral steroid use in past year, __.
How often using rescue meds: daily,__. <2 times a week,__. 3-6 times per week,__.  monthly,__.less than once a month,
__.sporadic,__.
triggers: exercise,__.colds,__.allergies,__.
Nights with symptoms: none,__. <2 per month,__.  3-4 per month,__. >5 per month,__.          Page: 5
Maintenance meds: not applicable,__.compliant,__.
peak flow meter reading: not applicable,__. range as noted,__.
asthma action plan on file,__.yearly flu vaccine,__.

risk factors for chronic asthma: __,atopic dermatitis. __ ,parental history of asthma.
Objective

Assessment
__Asthma , unspecified #493.90.
__asthma teaching (nebs, mdi, etc.) 94664
Plan
asthma is:  __mild intermittent (days with symp <2 per week and nights with symp < 2 per month).
__ mild persistent (day symp 3-6/week, night sym 3-4 month, exacerbations may affect activity.
__ moderate  persistent (daily symptoms, night sym >5 month, exacerbations  affect activity.
__ Severe  persistent (daily symptoms, night symp frequent, limited physical  activity.

Plan: __MI= no daily med needed. __ mild perstient (daily cromyln or low dose inhaled steroid, and long acting beta
agonist, consider leukotriene modifiers).  __ Moderate persistent (inhaled steroid medium dose or low dose and cromyln,
consider leukotriene modifiers), long acting beta agonists. __ Severe persistent (high dose inhaled steroid and consider
leukotriene modifier), long acting beta agonist.

__ add peak flow meter.
__ continue peak flow meter.
__ asthma teaching completed and handout given.
__ inhaler teaching completed with instructional handout given.
__ nebulizer teaching completed with instructional handout given.
__ spacer teaching completed with instructional handout given.
__ sweat test.
Medications

Follow Up
per asthma action plan.
__ 1-6 months.

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We can show how our assessment is supported by our history and physical and how our treatment is directed in accordance with national guidelines. The template can be easily modified as recommendations are updated. After our evaluation we provide patients with complete patient information regarding asthma, use of inhalers, aerochambers, nebulizers and/or peak flow meters. Each patient leaves with a personalized asthma action plan and copies are given to schools and daycares. This is all accomplished without ever having to leave the room. An example of one such plan is seen below. If a care giver calls in with concerns, the nurse has a clear, written plan to follow.

Asthma Action Plan for FakeFirst Fake
01/07/2003   Best Peak Flow = 235L/min

Green Zone: All clear   *If you are in the* **Green Zone...**
This is where you should be   - Do your peak flow and record it every day.
every day
Peak flow above 230 L/min
(80 - 100% of best)
 - no signs of asthma   - Take these medicines every day:
 - able to do normal activities   *Flovent 110 - 2 p bid*
 - no problems while sleeping

Yellow Zone: Caution!   *If you are in the* **Yellow Zone***, take these actions to get*
Be Careful!   *asthma under control...*
You have signs of asthma.
Take action to get asthma   -**First** -- Rest, tell an adult, take this rescue medicine:
under control.   Albuterol. 2 puffs (or a nebulizer treatment) 3 time(s) in first hour
Peak flow 200 to 230   Pulmicort Respules 0.25
(50% to 80% of best)
Early signs of asthma: -**Next** --
 - coughing   - If you are not having any signs of asthma and your peak flow is in the green zone,
 - wheezing   continue the Green Zone medicines.
 - tightness of chest   - If your signs of asthma return, you may use your albuterol
 - shortness of breath   up to every 4 hours as needed.
 - unable to do normal activities   - Call your doctor if:
 - unable to sleep at night   - after the first hour, you still have signs of asthma.
 - cold symptoms   - you continue to need albuterol more often than every 4 hours.
          - you need albuterol every 4 hours for more than 24 hours.

Red Zone: Danger!   *If you are in the* **Red Zone***, this is an*
EMERGENCY and you should take these actions...
This is an emergency!   *You need help!*
Peak flow below
  (less than 50% of best)   -**First** -- take the rescue medicine:
Late signs of asthma: **Name of Medicine   How much to take   When to take**
 - very hard time breathing   Albuterol   4 puffs (or a nebulizer treatment)
immediately
 - trouble talking or walking
 - constant coughing   -**Next** -- Repeat your peak flow in 5 minutes:
 - use of neck and stomach muscles   - If peak flow is in the Yellow Zone and you feel better, you
should
  to breathe   ***call the doctor and ask what to do.***
 - ribs show when breathing   - If you are unable to blow your peak flow, or if your peak
flow is still in the
 - breathing medicines don't help   Red Zone, or you are having late signs of asthma,
 - lips or nails blue   ***Repeat your rescue medicine and go to the nearest***
Emergency   ***Room, or call 911.***
You must see a doctor!!

Our best feedback has been from a local school nurse. In a letter to us she wrote, *"I wanted to thank you for sending me a copy of the Asthma Action Plan for (name of student). Your computer-generated form is by far one of the most comprehensive and helpful documents we have seen. I know you use a similar system for your physical exam info-which is also terrific. I appreciate your time and commend you on the terrific standard of care you provide to your patients and their families."*

Families have also given us tremendous feedback. The following is a letter from one of mothers of three children.

Dr. Loveys has been our pediatrician for approximately 10 years during which time she has moved from a practice with manual, hard copy patient charts, records and prescriptions to a completed automated practice. Although we think of our three children as healthy, two of them have conditions (asthma and severe food allergies) that require careful watch to keep them healthy. I was very pleased to learn that Pediatrics at the Basin would be using an automated patient care information system. Since implementation of the information system, we have seen several significant improvements in service and care in the following areas:

Current and Accurate Information - *Upon arrival or during a phone call, the child's information is almost immediately available, since the chart is on-line. So new staff or staff unfamiliar with our children can view their medical profile and speak directly to the specific child's health concerns and medications. This is particularly comforting as the children grow older and are away from home more often, since they may find either themselves or a school nurse (rather than the parent) speaking directly with Peds at the Basin.*

Efficiency – *Since the complete medical history is available on-line, in a very easy to access format, the interview process and "charting" occurs very quickly. The staff enters all Q&A's, and statistics into the system during the visit or phone call, not after the fact. We greatly appreciate the efficiency, because efficiency should **lower the overall cost of health care** – and it leaves more time for other commitments on our schedule and the staff's schedule! It seems that we never have to wait because the office runs so efficiently!*

Overall Patient Care – *Specifically, we have seen a significant improvement in patient care as a result of the automated Asthma Action Plan. For those of us in the "lay" world asthma, and its related treatments, is a very complicated and confusing condition. Peds at the Basin uses an automated Asthma Action Plan that spells out exactly what actions/treatments the parents (or child) should follow, depending on the specific conditions or symptoms. This helps us to minimize our son's acute asthma episodes through prevention and lowers our anxiety during an asthma episode. The Action Plan is automatically updated based on changes in the child, and can be e-mailed or faxed to the school nurse.*

Summary
We are extremely pleased with the significant improvements in service and care related directly to the implementation of Peds at the Basin's automated patient care system. The efficiency and effectiveness of the office is exceptional compared to our experiences with non-automated practices!

Dawn DePerrior
4/29/04

And from yet another mother…

Pioneers of technology

I love technology and so do my friends In fact, in the environment of increasing work demands, we depend upon it to carefully balance our busy lives. According to a 2001 study by Cornell Families and Work Institute, upstate New Yorkers are working more hours than ever, with an average increase of ten hours per week per dual earner couple since 1990. As a result, services geared towards streamlining and simplifying daily tasks are in great demand. Pediatrics at the Basin's website and electronic medical record system, as well as the ability to correspond with physicians via email are excellent examples of how technology can be used to benefit patients and parents as consumers and partners in health

Streamlined systems, quick results

As medical consumers, we had become accustomed to waiting several days, if not weeks for test results and reports. The electronic medical record system that Dr. Loveys and her colleagues at Pediatrics at the Basin utilize is extremely effective, and we have benefited from its applications many times! With the streamlined system, we have never waited more than one day for a report or result! On one occasion I called the office to request an immunization record which was required for my daughter's school. Dr. Lovey's office printed the record out immediately, and it was in our mailbox at home the next day. There are many other benefits of electronic medical records – ones that we don't readily see, but that we believe greatly improve the overall quality of patient care. Can you imagine being a school nurse and receiving, via fax or email, a personalized asthma action plan, for a student? This is one of many services that this system makes possible.

Dr. Loveys and her partner are one of the first (and possibly the first) pediatric practice in the Rochester area to introduce electronic medical records, they won't be the last. They are true pioneers in this area.

Website kudos

Like many wired moms, I often utilize the Internet for research about issues concerning my family. As a layperson, it is sometimes difficult to confirm the validity of healthcare information on the Internet. Pediatrics at the Basin has an excellent website that provides comprehensive information on common medical concerns and developmental milestones, as well as links to trusted resources. Prior to a yearly physical, we reference the "checkup guide" online and use it to compile a list of questions for Dr. Loveys. I know of many moms who reference this practice's website on a regular basis. I even know of one expecting mom who was so impressed by the website that she signed her new baby on as a patient!

Email correspondence

The ability to communicate with Dr. Loveys via email is another great perk. Email is a great method of correspondence that allows me to get the information that I need as my schedule permits, and I greatly appreciate being offered this option! Although we have NEVER had to wait long for a phone call or an appointment with Dr. Loveys, the option of email eliminates unnecessary time and effort. For one thing, there's no more phone tag!
One experience comes to mind that illustrates how Dr. Loveys thinks out of the box, using technology to improve quality of care. After a regular immunization, my daughter developed a rash. Dr. Loveys had cautioned that this might occur, so I was not overly concerned. However, after several moms commented on the appearance of the rash, I began second-guessing. I emailed a photo of the rash to Dr. Loveys, explaining my quandary, and she responded the same day. The rash was not of concern. We were saved an office visit as well as undue anxiety. Dr. Loveys mentioned that she would investigate uploading the photo to a virtual medial record, which we thought was great!

We truly appreciate and admire the use of technology in her office, but where it has benefited us most is in the care and keeping of our daughter! Having a streamlined office means that Dr. Loveys has more time for us. She is always generous and accommodating with her time and advice. Once, there was a patient emergency in the office and we had to wait a short time. Dr Loveys was ever-apologetic about the delay (a first for us as far as apologies for being late from a physician), adding that "but you know that if it were your child, I'd do the same thing". We believe that whole-heartedly. Fortunately, we have never had to deal with a serious illness. But if we did, we would count ourselves lucky to have Dr. Alice Loveys as our health advocate. She is a pleasure to know and trust and I can think of no other person who is more deserving of recognition. I wish that every mom could have a partner in health like Alice Loveys. I hope that her practice model will serve as an inspiration for other pediatricians so that others may be as fortunate!

As physicians, using an EHR has allowed us to meet our goals for clinical and personal care. The atmosphere in the office is much less stressful than a paper based office. We have access to our patient records day or night. It is not unusual on our "day off" to use the internet from home to view a patient's chart for results and follow up. We can access the charts from home at night as well when we are on call or again to follow up on patient care. We have had more time with our loved ones and been able to enjoy some quality personal time. We arrive home more relaxed and with more energy than we had when we were using paper charts.

The same holds true for our staff. We would like to share some of their comments with you.

Barb Ball (office manager): *Because of electronic records I am able to operate all of my duties from my desk. All message, refills, referrals, school forms, and immunization record forms can be done without pulling or finding charts. I am so relieved to be able to take a message from a mother and know the message is in the chart and sent to the doctor. With the paper charts there was always the possibility the chart and message would get separated and missed. The patients are very appreciative of the speed and efficiency by which we can get shot records and forms completed and the communication is prompt. Electronic records were out of my comfort zone initially, but now, everyday I learn new and more efficient ways to make my job easier and less stressful. To work in such a technologically advanced office is a privilege.*

Allison Marsh (nurse) *Electronic records allows more time with patients. We do not waste time pulling and filing charts. When a patient calls with a concern, they do not have to be put on hold as we pull a chart. We can quickly view past history and document the current problem. EHR allows for timelier follow-up. Notes to the MDs are immediately in the electronic chart and flagged for review. Patients get calls back quickly. Most importantly, EHR allows more time spent with patients. Teaching and reinforcing instruction s is done very easily by printed handouts and flow sheets. Vital signs and growth parameter percentiles are automatically calculated at well child checks. I don't miss plotting those by hand!*

Financials

We were very fortunate to select a EHR that allowed us to accomplish our goals at a very reasonable cost.

Cost Element	Initial	Ongoing
EHR Software	$1500 per physician	$300 per year per physician includes technical support and all upgrades
Hardware	$10,000 *	$1500 per year
Installation	$500	$500 per year
Implementation Support	Part of licensing	$100 per month for maintenance of computers and software other than EHR.
Coverage for physicians during training	NA	NA
Interfaces or EDI connections	$2,000	$500 per year HL7 licensing fee
Other		

*We spent $4,000 on a server based on the recommendation of our first IT support person. We have since learned we could have bought a much less expensive machine to accomplish the same goals.

Since we started this office and transferred over existing patients we can only estimate a reverse ROI based on national statistics of monies we did not have to or continue to need to spend.

Cost element	Initial savings	Ongoing savings/revenue increases
Charting / pulled charts	National estimates costs of $ 4 - $ 8 per chart pull	$ 4 per chart not being pulled for in office encounters alone (4200 this year) = $16,800
New patient entry	$4-7 per new patient ($2,000 - $3,500 for our practice to date)	$4-7 per new patient ongoing (add about 20 per month) $1000 - $1,400 per year
Transcription service	No service required	$10,000 per year
Office personnel	Less staff required	$20,000 - $30,000 per year
Charge capture		Full documentation available for level of service increases revenue
Space	No space required for storage of paper charts	$5,000 per year

The time element and redistribution of how time is spent is remarkable.

Time Element	Paper Charts	EHR system
Phone	Patient holds or gets call back while chart gets pulled	Chart accessed while patient is on the phone
Lab Reports	2-3 days for paper report mailed to office, chart pulled, to providers desk	In chart and on provider's to do list within 5 minutes of results being available.
Waiting Time	Patient waits while chart is pulled and while provider goes through chart to access information	Information is organized and able to be quickly accessed, for example, a single mouse click gives entire medication history
Time for patient encounters	10 minutes per acute and 20 minutes per well child	15 minutes per acute and 30 minutes per well child
Pharmacy Call backs	15 minutes per call	3 minutes per call, total number of calls reduced

Lessons Learned

Critical Success Factors - We are lucky to have a good team to select, implement and make the most of our system. We have an excellent IT person as part of the team, which is essential. The process is a gradual one. Investigate what functions are important in a system to the particular office's workflow before purchasing a system. Offices should give themselves time to select and implement a system and build in some time for a team member to develop customizations. The time invested will be well worth it and you'll be able to enjoy all the benefits an EHR offers professionally and personally.