Cover Page

Applicant Organization: Children's Medical Center Dallas

Organization's Address: 1935 Medical District Drive; Dallas, Texas 75235

Submitter's Name: Christopher Menzies, M.D.

Submitter's Title: Chief Medical Information Officer

Submitter's E-mail: Christopher.menzies@childrens.com

Menu Item: **Children's Patient Engagement:** Creating a robust patient engagement initiative and online community

National Patient Safety Goals (NPSG) and/or a National Priorities Partnership (NPP) goal or goals addressed through health IT for which this submission is based, if applicable.

Hospital National Patient Safety Goals (NPSG)	Check all that apply.
• Improve accuracy of patient identification.	X
• Improve the effectiveness of communication among caregivers.	X
• Improve the safety of using medications.	X
• Reduce the risk of healthcare associated infections.	
• Identify safety risks inherent in the patient population.	X
• Prevent wrong site, wrong patient, wrong person surgery.	

National Priorities Partnership (NPP) Goals	Check all that apply.
• Engage patients and families in managing health and making decisions about care.	X
• Improve health of the population.	X
• Ensure patients receive well-coordinated care across all providers, settings and levels of care.	X
• Safety: improve liability and eliminate errors wherever and whenever possible.	
• Compassionate palliative and end-of-life care.	
• Remove waste and achieve effective, affordable care.	

Executive Summary

Children's Medical Center Dallas (Children's) seeks to meet its customers where they are: online. Therefore, the organization leveraged technology to offer a customized online experience for clinicians, physicians, patients and families, the community, donors and employees. Upon login, Childrens.com recognizes the user, presents unique content and allows the patient to designate an English or Spanish language preference. Patients also have the ability to connect with one another through social media, communicate with clinicians via direct messaging, and provide clinically-relevant data through remote care logs. Through implementation, Children's has created efficient online workflows that save costs, satisfy patients, families and other audiences, and make Children's the preferred provider for complex care.

Background Knowledge

Children's serves two full-service inpatient hospitals, licensed for 595 beds (418 operating of which 100 are intensive-care beds), 54 specialty care clinics, and six pediatric primary-care physician offices/medical homes. More than 2,100 medical staff members as well as day-to-day staff of more than 5,000 full-time employees support the various locations.

The implementation of the electronic health record (EHR) provided the foundation of Children's patient engagement initiative, internally named "the Online Experience" (or OLE). OLE was launched with a primary goal to provide patients and families with direct access to their medical information. This goal was tied to Meaningful Use requirements. In addition, Children's identified secondary goals associated with EHR implementation including:

- Improving the patient experience by creating a more customer-friendly process.
- Streamlining hospital operations.
- Yielding cost savings as a result of automation.
- Developing an EHR-Enabled Text Messaging Pilot designed to engage asthma patients.

Local Problem Being Addressed and Intended Improvement

Children's had an online presence (internal and external) prior to the Online Experience initiative; however, the infrastructure was insufficient to meet the needs of a growing base of users that included clinicians, physicians, patients and families, the community, donors, and employees.

Increasingly, patients and families expressed a desire to access information about their care, along with the ability to connect with care givers and others with similar health issues, and to share information online. Concurrently, clinicians sought innovative opportunities to educate, engage and communicate with patients and families during the course of care.

These goals aligned with the organization's need to execute a digital strategy to attract users to www.childrens.com and to increase awareness of Children's to consumers, the community and referring physicians. The Children's Online Experience solution was developed to meet the needs of patients and families, clinicians and the organization by incorporating multiple customer-centric technologies that spotlight Children's as the preferred resource for pediatric care, enhance communications and better engage internal and external audiences.

Design and Implementation

The Online Experience became a strategic multi-year initiative designed to:

- Upgrade the existing physician's portal to current technologies.
- Develop a multi-phased plan to increase public awareness (by redesigning the external public-facing website).
- Redesign the Children's employee portal (the intranet); and later address other community-related needs.
- Develop a more user-friendly portal solution utilizing Web 2.0 technologies for patients and families to connect with their care providers.

- Encourage self-management of the patient's health condition.

Children's spent the first year interviewing stakeholders, identifying needed technologies, writing a multi-year roadmap and establishing a strong governance structure. The organization established the Online Experience Steering Committee, comprised of executive leadership across Marketing and Communications, Medical Affairs, Operations (Inpatient and Outpatient), and Information Services (IS) departments. There are four active sub-groups: Patient Populations, Communications, Infrastructure and Clinical Operations. Two other groups, the Employee Online Experience and the Physician Online Experience, also meet periodically to address future developments.

Phase 1 of the initiative involved redesigning www.childrens.com and implementing a new content management system, which allowed Children's to decentralize content management and allow clinicians to own, manage and update their own online content. This system provided a means for end users to keep content current and granted the ability to update content "on the fly," ensuring only the most current and relevant information was available on Childrens.com.

Phase 2 of the Online Experience initiative focused on developing content and tools for patients and families behind a login screen. First, the organization implemented the Children's Social Network; and in 2011, launched social media sites for every patient population at Children's. Participating families can create a profile and join Children's social networking communities to share experiences and struggles that they go through in their daily lives. The sites also allow participants to "blog" about experiences, provide information about the disease from respected medical resources and provide a 21st century approach to family support groups. As an example, when patients receive diagnoses that may be overwhelming or frightening to them, they are able to use the Children's Social Network to connect with other families whose children have received similar diagnoses. As a result, the families are able to encourage and support one another, and rest in the knowledge that they are not alone. Additionally, the social media sites provide Children's the ability to keep track of the community patient populations and their perceptions of care.

In addition to the Children's Social Network, the expanding portal (also known as MyChart) experience allows the patient's parent or guardian to interact more regularly with physicians and other clinical staff with questions or as they schedule appointments. The portal will continue to provide an increasing level of interaction for patients, family members, physicians and clinical staff.

In December 2011, Children's implemented the patient-family portal for Endocrine patients (one of the organization's largest specialty care populations) to include the integration of the EHR with the Children's portal technology. In addition to the features provided by the EHR which included scheduling appointments, messaging and lab results (to name a few), the portal allows families to register for immediate access to their child's medical record, enter clinically-relevant information into remote care logs (such as a pain journal for gastrointestinal patients, symptom

calendar for the asthma management program and a diet record for the food allergy clinic), access disease-specific educational materials and complete forms online. In turn, clinicians have access to the data provided in the remote care logs, resulting in a better means to manage the patient's care.

Children's continues to engage additional patient populations with online forms, customized remote care logs and education materials specific to each disease. The entire patient and family site behind the login is available in Spanish and English to better serve the Hispanic population.

Patient and family access to information has transformed the online experience for the family and clinical audiences, and provides users with a unique experience tailored to their preferences. This approach better engages the user, encouraging them to be more involved with Children's, whether it is as a physician, patient, employee, donor, volunteer or a member of the general community.

As an extension of these services, Children's also launched an asthma management texting program. The texting program is a 6-month education program designed to educate, create participative patients, and send reminders about taking medication. The program has a consent and integrates into Epic on the back end. Patents join the program by first receiving and replying to an opt-in email. The program is available in both Spanish and English.

How was Health IT Utilized?
Children's leveraged a combination of existing and new technologies to support the Online Experience initiative.

www.childrens.com Redesign — The redesign of the Children's public website used a premier content management system, which allowed for decentralized content management.

Children's Social Network — The Children's Social Network was developed using a top-tier social software solution. This technology provided all the functionality needed to configure a patient/family network with disease-specific communities, blogging and the ability to share experiences.

Children's Patient/Family Portal — The Children's Patient/Family portal was developed with existing portal infrastructure, an enterprise wide solution. This technology supported Single Sign On requirements, the ability to build a wrapper around the existing EHR capabilities and interfacing using web services. The portal integrates with a forms tool to support remote care logs as well as a web analytics product to provide metrics.
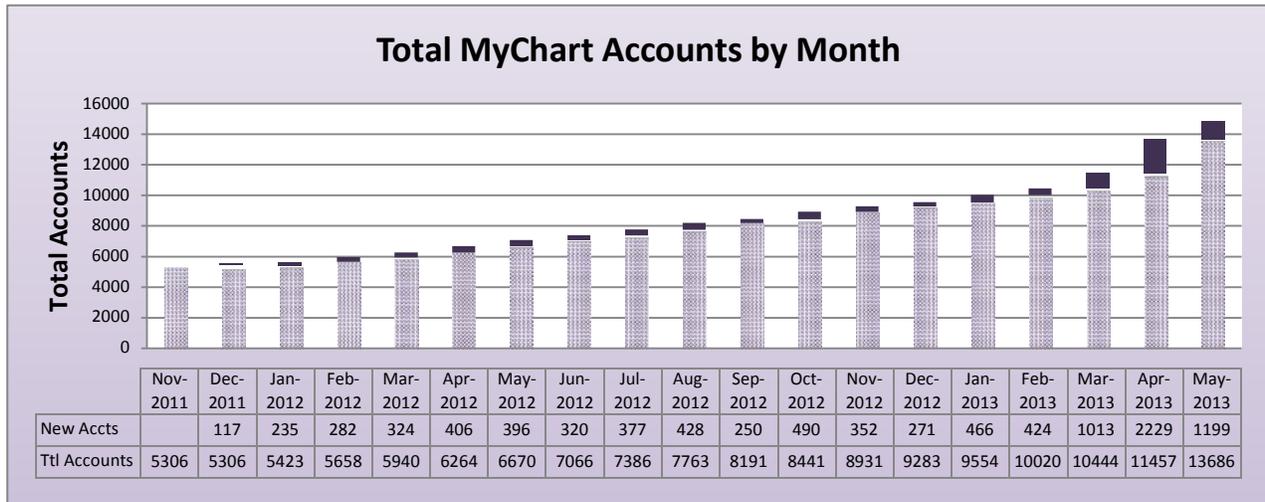
Value Derived/Outcomes
The Childrens.com sign in page averages 19,000 unique visitors every month from patients,

families, providers and employees. When the Children's portal went live in late November 2011, just more than 5,300 patient/family accounts were active. Since that time, participation has steadily increased due in part to the organization's efforts to educate staff, patients and families

through the use of posters, signage, table tents, targeted mail outs and a professionally-produced video. During the twelve-month period between January 2012 and January 2013, the portal averaged approximately 345 new accounts per month with a January 2013 total nearing 10,000 active accounts (see Figure 1).

Figure 1

Total MyChart Accounts by Month

	Nov-2011	Dec-2011	Jan-2012	Feb-2012	Mar-2012	Apr-2012	May-2012	Jun-2012	Jul-2012	Aug-2012	Sep-2012	Oct-2012	Nov-2012	Dec-2012	Jan-2013	Feb-2013	Mar-2013	Apr-2013	May-2013
New Accts		117	235	282	324	406	396	320	377	428	250	490	352	271	466	424	1013	2229	1199
Ttl Accounts	5306	5306	5423	5658	5940	6264	6670	7066	7386	7763	8191	8441	8931	9283	9554	10020	10444	11457	13686

This adoption rate was viewed as good, but it was not good enough. So Children's reevaluated its Patient Portal adoption rate and began looking for ways to increase patient adoption. To that end, Children's worked with operational groups to build patient sign up and portal education tools into staff workflows. This approach has proven successful—portal activation rates have significantly increased from a high of 466 in January 2013 to over 1,000 in March 2013 (one month after the new workflow was rolled out), and more than 2,200 in April 2013. Based on these results, Children's believes that the upward trend will continue and increase as the staff grows more comfortable with the new workflow.

Real benefits have been shown in process improvement and reduced clinical phone calls. Previously, school forms required a physician signature, and consequently had to be completed when the family visited the office. Additionally, prescriptions and patient education materials were on paper, and questions could not be submitted online, but rather through phone calls. Today, instead of making a phone call, patient/families can log in to view sick day and work excuses, see lab results, refill prescriptions, ask non-urgent clinical questions, obtain patient education materials, and access online support tools. These operational efficiencies reduce the time Children's clinical staff spends on administrative tasks and improves the safety and quality of care for patients and families.

As of March 2013, patients and families had sent more than 12,000 total messages to their care providers, averaging approximately 480 messages a month for the prior 6 months. This results in 480 fewer phone calls and messages/call backs required by staff. Patient use of this messaging functionality continues to grow.

Figure 2

Since the phased implementation of the patient portal began in November 2011, Children's has seen a steady increase in appointment requests for existing patients. While there was a small dip in the fourth quarter of 2012, the monthly average is trending upward toward 100+ requests per month. As a result of online appointment request capability, the number of phone calls is reduced, allowing staff to spend more time with patients, focusing on their care, and less time on administrative matters.
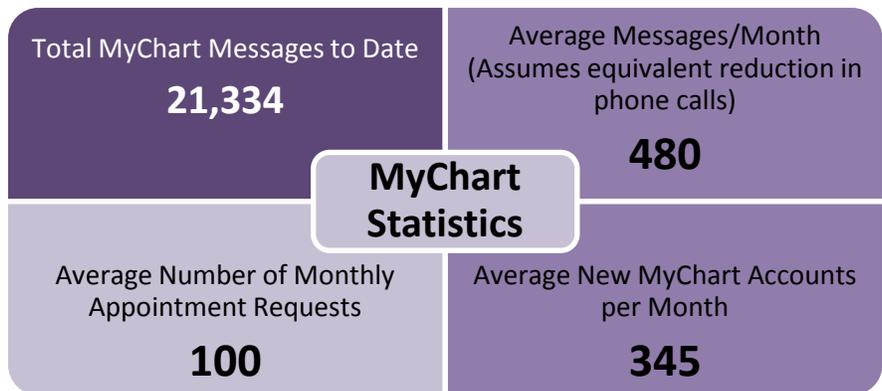
Continued marketing and promotion of the patient portal remains critical to patient and family adoption.

MyChart Statistics

Total MyChart Messages to Date **21,334**	Average Messages/Month (Assumes equivalent reduction in phone calls) **480**
Average Number of Monthly Appointment Requests **100**	Average New MyChart Accounts per Month **345**

Additionally, efforts are under way to incorporate physician referral and new patient appointment requests into the online space with a goal to process most requests digitally.

The asthma pilot has produced promising results. Well over 35 of the 50 original pilot participants have actively utilized text message prompts on appropriate follow up care. Since launching in December of 2012, those 35 active participants have averaged engaging in text messaging at an average of 3 to 12 texts per month, which is a significantly higher percentage of engagement than the patient portal receives.

AMP SMS Message Count
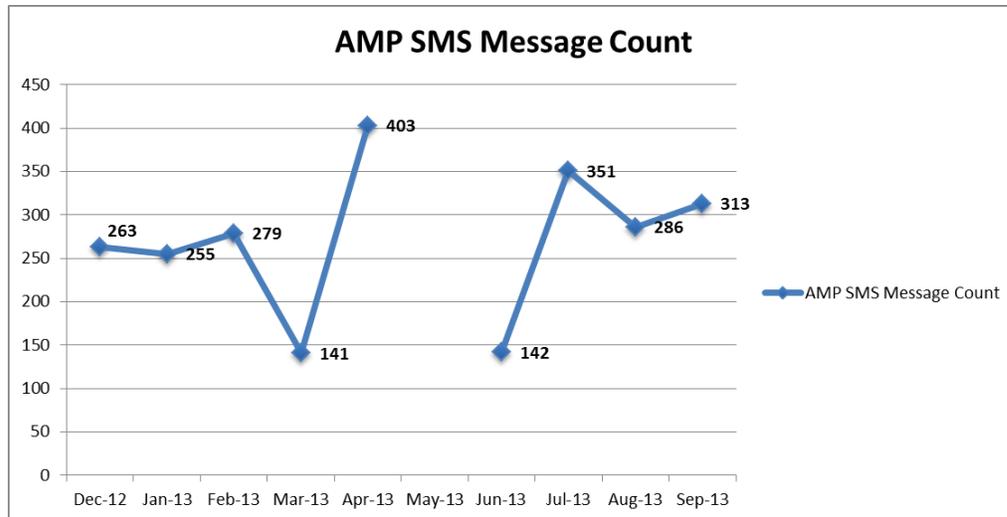
Children's plans to expand the program to other specialties in 2014, starting with a survey of current plan participants to measure their satisfaction level and analyze any comments and suggestions.

Lessons Learned

Comfort is key: Implementing the patient/family portal required the involvement of front line clinicians and staff. The portal provided by the EHR requires patients to register in the clinic, relying on clinic staff to encourage families to enroll. Despite efforts to train staff on portal functionality and features before and after implementation, clinic staff members remained uncomfortable with their understanding of the portal's features and functionality. Further, clinic staff did not have access to the portal to review and self-educate, so they did not feel they could adequately communicate the portal's benefits with families. As a result of the clinic staff members' lack of familiarity with the portal, patients and families were not encouraged to sign up for the portal, which was counterproductive to the goal.

To address this challenge, Children's developed unique login IDs and specific use cases in a test environment to allow staff to gain familiarity with the features of the portal. These specific use cases allow clinicians to log in as a family and see what the family sees, helping to bridge the understanding gap between clinicians and patient families. The benefit is that clinicians are better equipped to discuss the benefits of the portal with their patients and encourage them to enroll.

Show and tell doesn't always work: Through the process, Children's has realized that it takes more than just showing and telling staff about the tools. These concepts are part of the process, but it is also important to incorporate the education and marketing process into staff interaction with patients during the patient encounter. Adding portal education and marketing elements into the daily workflow makes sense to both the staff and the patient, and it has created significant positive impacts to the portal adoption rate.

Educational materials for both staff and families have been created and distributed, and targeted patient populations have received materials by mail detailing the benefits of the portal. Training and demonstrations for staff continue.

In addition to the measures outlined above, Children's invested in a professionally-produced video to communicate Children's vision and highlight key functionality available through the portal. The video, *Get the Essential Tools to Manage Your Child's Care Online*, was intended for all audiences and truly captures the spirit of and reasons behind the project. This video is available on Children's YouTube channel and website, www.childrens.com.

Be on the same page: In the interest of transparency, Children's identified opportunities for improvement with the concept of decentralized Web content. Initially, it was thought that clinical content on the public site could be created and maintained by clinical staff. However, some of the clinical staff lacked the skill set necessary to manage content, while others felt that maintaining content took time away from their primary duties of caring for children. To address these concerns, Children's is reevaluating its tools and approach in an effort to identify more "user friendly" content management technologies.

Utilize multiple strategies: To take advantage of the growing use of cell and smart phone technologies, Children's adopted an EHR-enabled solution for a pilot program that provided text updates to asthma patients with best practice guidance for follow up care. Based on early utilization rates, it appears that getting information directly through text messaging is a possible solution to challenges with getting patients to use other log-in based portal technologies.

Financial Considerations

Phase 1 of the Online Experience initiative was funded with a combination of capital and operating dollars. The capital dollars allocated to the project equaled $1.67M with a supporting operating budget of $.9M. Phase 2 was funded by a capital budget of $3.43M. The projected five-year capital costs encompassing all audiences (patient family, physician, employee and public) are expected to exceed $17M. These budgeted amounts include considerations for clinical staff training and Web development hours.

Prior to the deployment of the MyChart patient portal, approximately 25 percent of all encounters resulted in Children's mailing out results to patients and families. With MyChart, lab results are available online and don't need to be mailed to patients and families. This has resulted in a decrease in the associated staff, printing, and mailing costs. The figure below shows the resulting ROI expected through 2016.
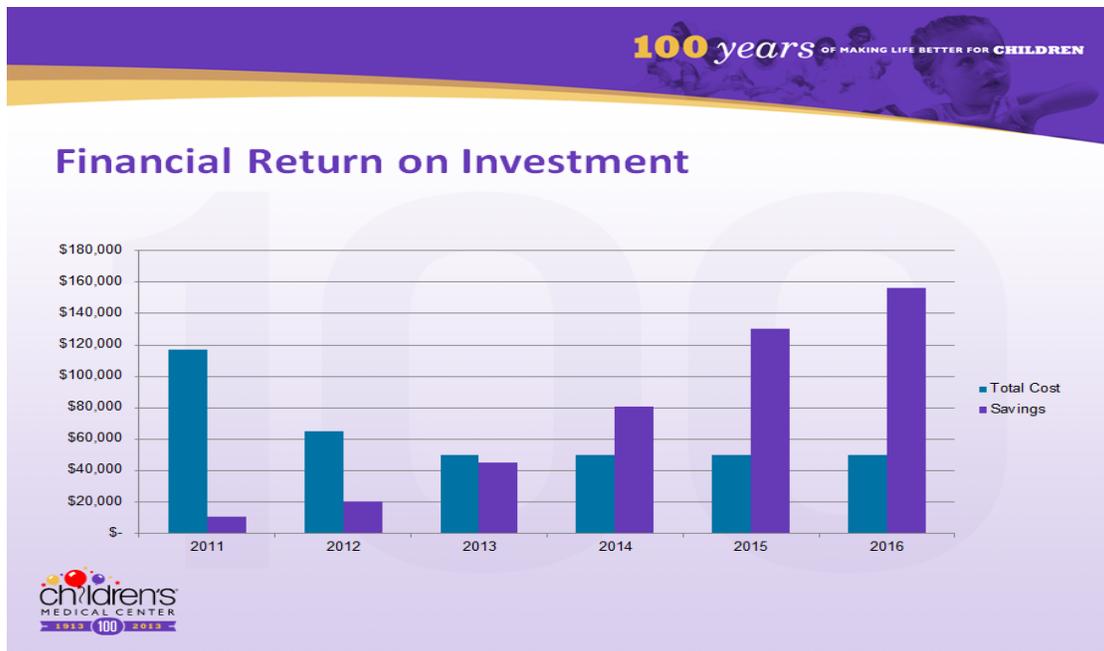
Children's expects indirect, long-term financial benefits including:

- Reduced time, space, and expense spent on paperwork/faxing
- Better use of provider and staff time
- Increased appointment capacity
- Components of routine care managed online