

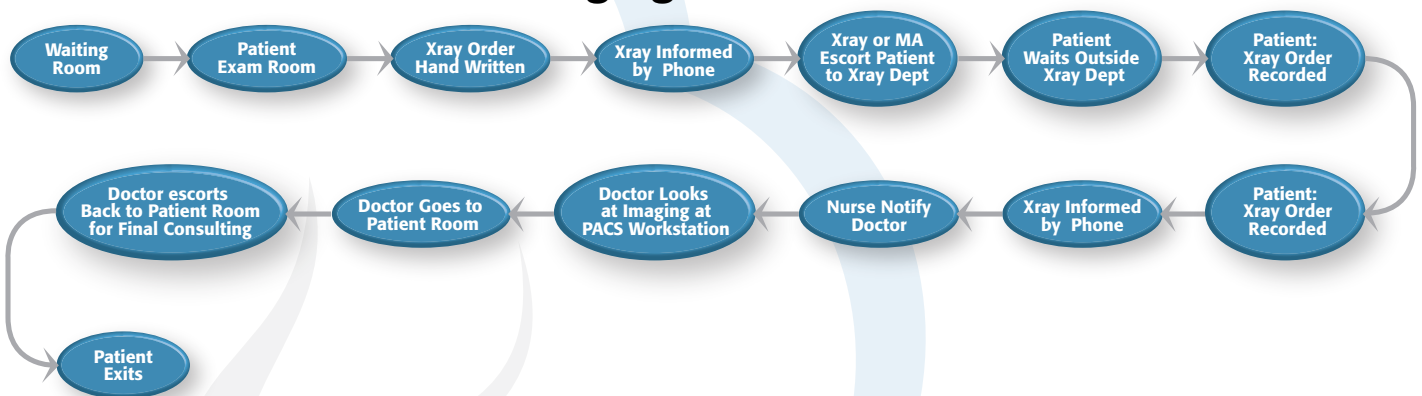
# CORRIDOR™ CASE STUDY

## Background

A fifteen person orthopaedic practice was looking to streamline patient visits that included X-ray. Several inefficiencies existed in workflow from the time an X-ray was ordered for a patient through diagnostic interpretation and patient consult.

For a new patient at the practice, the previous workflow with imaging entailed the patient being escorted back to the patient room, initial background taken, and an X-ray ordered via a hand-written document. The nurse called the X-ray department and then the nurse or X-ray technician walked the patient from the patient room to the X-ray department when they were ready. The X-ray was taken and then the patient was escorted back to the patient room by the nurse or X-ray tech. The physician had to be notified, and then he physician logged into the PACS system at his or her workstation space located outside the patient rooms to review the X-ray(s). Often, the physician printed the X-ray and went in to consult with the patient. In many cases, the physician may have ended up escorting the patient out to the physician's workstation with PACS, sign back into his or her workstation office, and show the patient the his or her high resolution image for the patient's understanding of the injury or condition. Extra time was being spent on the communication between nurses and the X-ray department regarding transporting of patients, and more importantly, the crucial time and the quality of time physicians were spending with patients was not being maximized.

## Previous-New Patient w/Imaging



## Solutions Considered

In order to address the workflow challenges with transporting patients to and from X-ray, the practice was considering a multi-colored lighting system on the exterior of the patient rooms. The varying colors would signal if the patient needed an X-ray, in X-ray, or was back from X-ray. This option was not aesthetically ideal for a newly finished office space, and the expected minimal benefit gained in workflow efficiency was not worth the cost.

To improve consultation and interaction between physicians and patients, the practice was considering installing PACs workstations in each of the twenty-four patient rooms. This was a very costly solution that would have required purchase of the workstations, as well as licensing of the PACS software for each of those rooms.

## Solution

Ultimately, the practice chose Banyan Medical Systems for their solution. Banyan Medical Systems worked with the orthopaedic practice to understand their workflows and develop a solution to help improve the quality of patients' visits and streamline the workflow of nurses, X-ray techs, and the orthopedists.

The Corridor software is a healthcare operating system that can be used to integrate and manage IT applications, video and controls from a single interface. Corridor links all the data sources together in order to provide a comprehensive patient view from across a patient's care continuum.

This orthopedic practice wanted Corridor to integrate its practice EMR system, PACS system, and web browser. Additionally, a custom X-ray ordering, technologist portal and transport module were developed and integrated into the Corridor system. Panels containing integrated PCs were placed in each of the 24 patient rooms.

By incorporating a custom X-ray order entry module into Corridor, nurses or physicians could electronically place X-ray orders directly from the patient room. (Exhibit A). Banyan worked with each physician and/or his or her nurse to understand what the needed data elements were in the X-ray ordering module, such as patient demographics and types of exams routinely ordered.

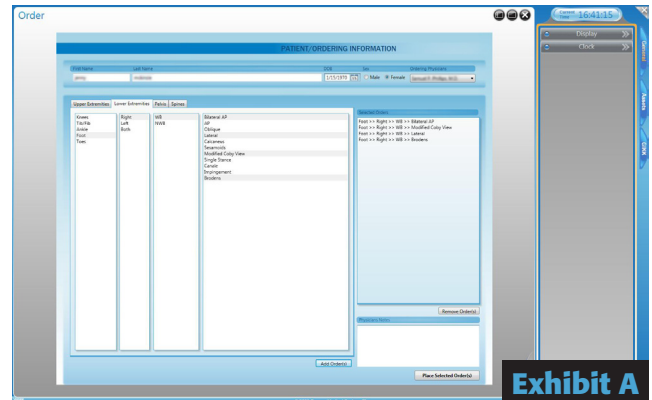


Exhibit A



Exhibit B

Upon successfully sending of an order, a message was simultaneously electronically sent to the Technologists Portal in the X-ray room, as well as hand held PDAs carried by the X-ray techs creating a transport module. The order appears in the technologist's workflow through the Corridor software on a large Banyan monitor in the X-ray room. (Exhibit B) The message on the tech's handheld device informed the tech of the patient's name, which room they were in and that the patient was ready to be transported to X-ray.

To help maximize the physician's time and consultation time with patients, Corridor enabled the orthopaedist to easily replicate the view from his or her workstation, to a PC based monitor located in the patient room. Once X-rays were ready to be viewed by the orthopedist, he or she could pull the image up on PACS on their workstation in their pod office outside the patient rooms as normal and make his or her diagnoses. Once entering the patient room, a physician, within seconds, can quickly log in to the Banyan monitor equipped with Corridor and be looking at the exact PACS image they were looking at from their workstation. The physician can fully interact with the PACS application just as it were running on the dedicated workstation. From the patient's perspective, they were then enabled to see a high resolution image of their injury or condition. With access to all their resources including PACS, the practice EMR and web based PACS, the physician is able to provide a more thorough consultation with the patient in a more efficient manner. (Exhibit C)

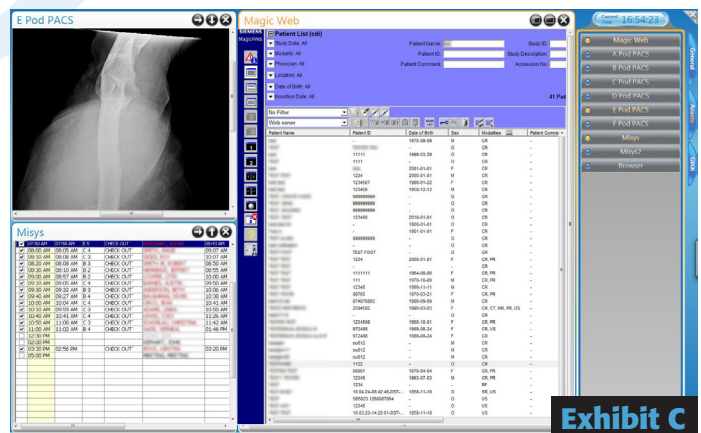
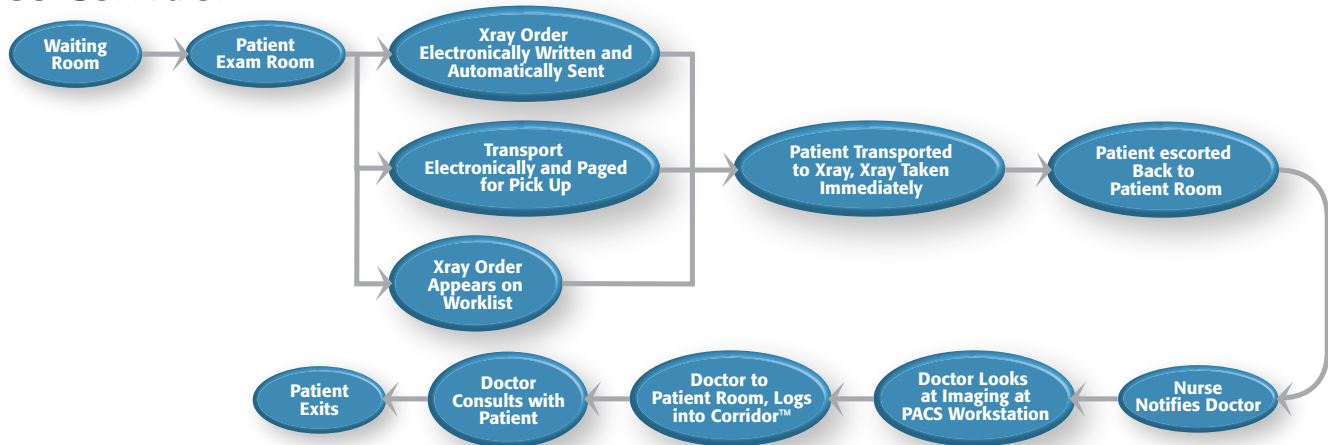


Exhibit C

## Post-Corridor



### Result

Using the Corridor software, it was very easy to see that the workflow of ordering X-rays and transporting patients to and from the patient room for X-rays had changed. And it was also very clear to see that there were no longer patients leaving patient room to visit the physician's workstation cubicle and look at their images.

The cost of Corridor software was a far less expensive solution than installing a workstation in each of the twenty four patient rooms, and the electrical and wiring of an elaborate lighting system for X-ray ordering. But Banyan set out to further prove the value of the orthopaedic practice's investment in Corridor.

A study was done that compared various time metrics for patient visits of the practice under their previous workflow and post implementation of the Corridor software. With Corridor, the average total examination time, **from the time the patient entered the exam room until the final time the patient exited the room, is about four(4) minutes shorter when the Corridor software was used.** In a high volume practice where doctors may see 40 or more patients a day, four (4) minutes per case is substantial. However, the best benefit the practice and the patients practice are realizing is the quality of the patient visit. **Even though the overall patient visit had been reduced, the time each physician was spending with the patient in the room and consulting increased by five (5) minutes.** Patients were spending less time waiting to be transported to X-ray and the orthopaedists were spending extra time in the room post X-ray discussing course of treatment with the patient.

## Pre-Implementation Summary Chart

**Minutes saved on each exam: 4**

**Minutes gained consulting with patient: 5**

|  |      |
|--|------|
| Average Patient Wait Time (min)  | 0:13 |
| Avg Waiting for Physician Time (min)                                   | 0:06 |
| Avg Time until Taken to X-Ray after physician ordered XR and Left room | 0:06 |
| Average Length of XR Examination                                       | 0:08 |
| Average time spent reviewing XR  | 0:02 |
| Second Physician Visit (Post XR)                                       | 0:07 |
| Average Patient Visit  | 0:47 |

## Post-Implementation Summary Chart

|  |      |
|--|------|
| Average Patient Wait Time (min)  | 0:12 |
| Avg Waiting for Physician Time (min)                                   | 0:03 |
| Avg Time until Taken to X-Ray after physician ordered XR and Left room | 0:03 |
| Average Length of XR Examination                                       | 0:08 |
| Average time spent reviewing XR  | 0:01 |
| Second Physician Visit (Post XR)                                       | 0:12 |
| Average Patient Visit  | 0:43 |



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