

## INTRODUCTION

The Operational Access Practice Standards for Wayne state University Physician group (WSUPG) Ambulatory Clinic states that “patients will be seen by the scheduled provider within 30 minutes of their scheduled appointment time or their arrival, whichever is later.” The average time for a patient to be seen by a physician had previously been measured for the period March-May 2013 and was found to be 36.7 minutes. This failed to improve after an intervention to improve workplace organization using ‘5S’ lean principles and increased to 48 minutes by August 2013. We undertook a resident-driven QI initiative to identify potential causes of delays in patients being seen by resident physicians. We then implemented a PDSA cycle to increase the percentage of patients seen by residents within 30 minutes of scheduled appointment or arrival time; whichever is later, to 75% within a two-month period.

## METHODS

### Baseline process mapping and Fishbone diagrams to identify possible causes:

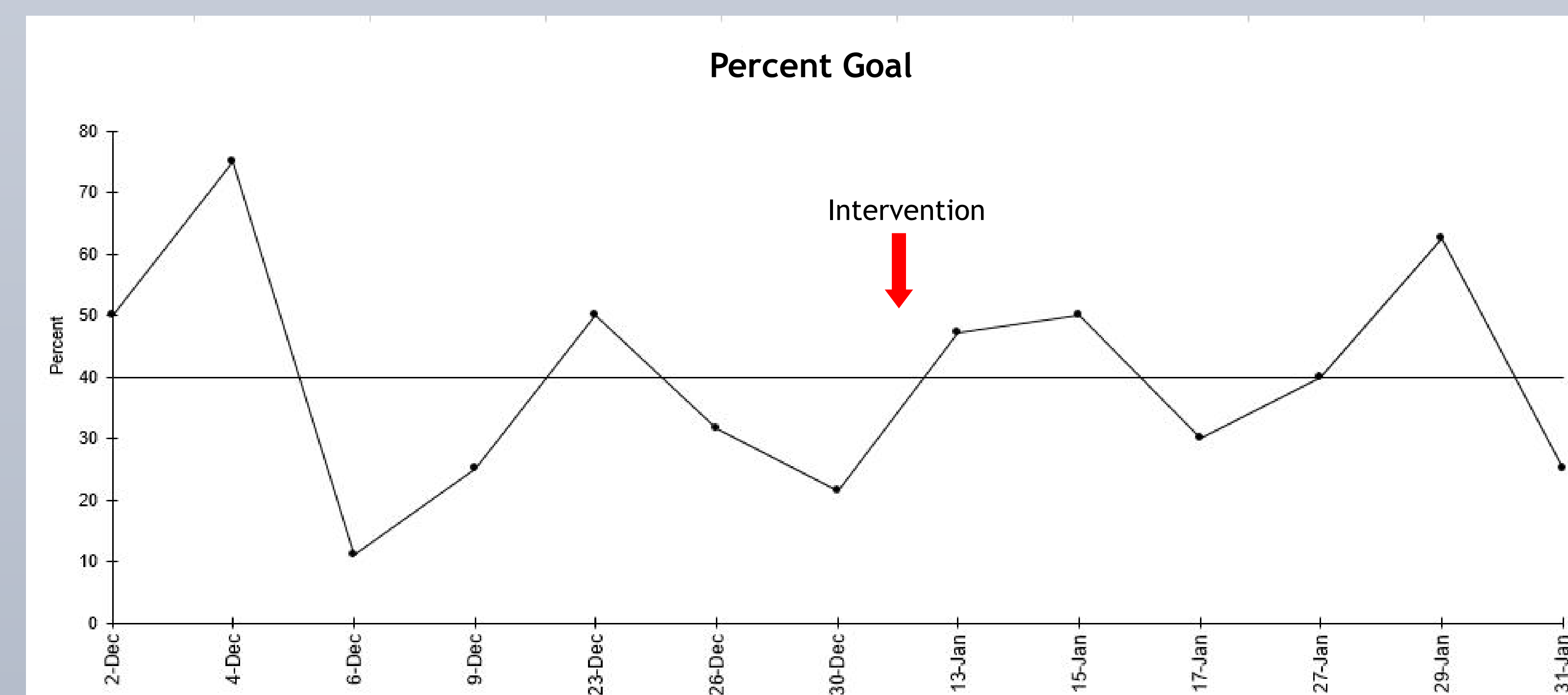
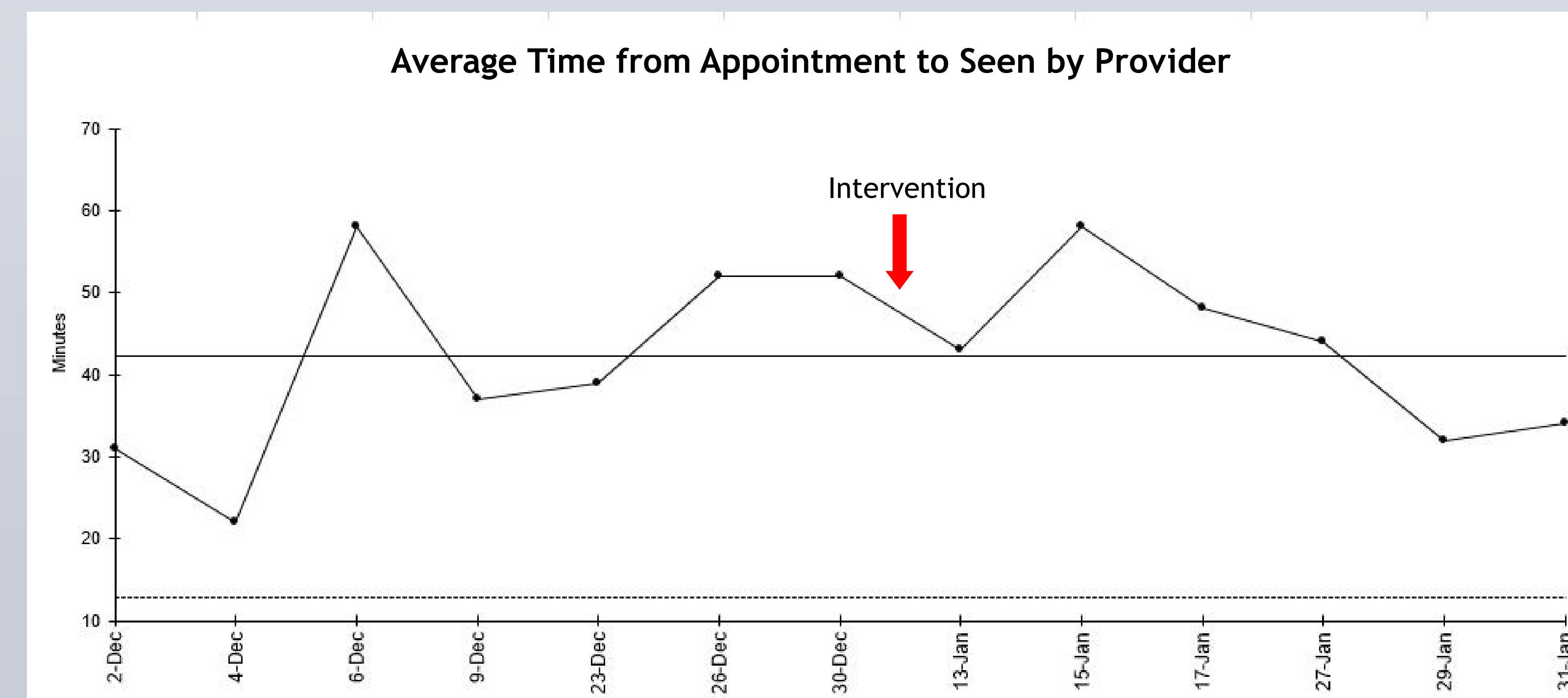
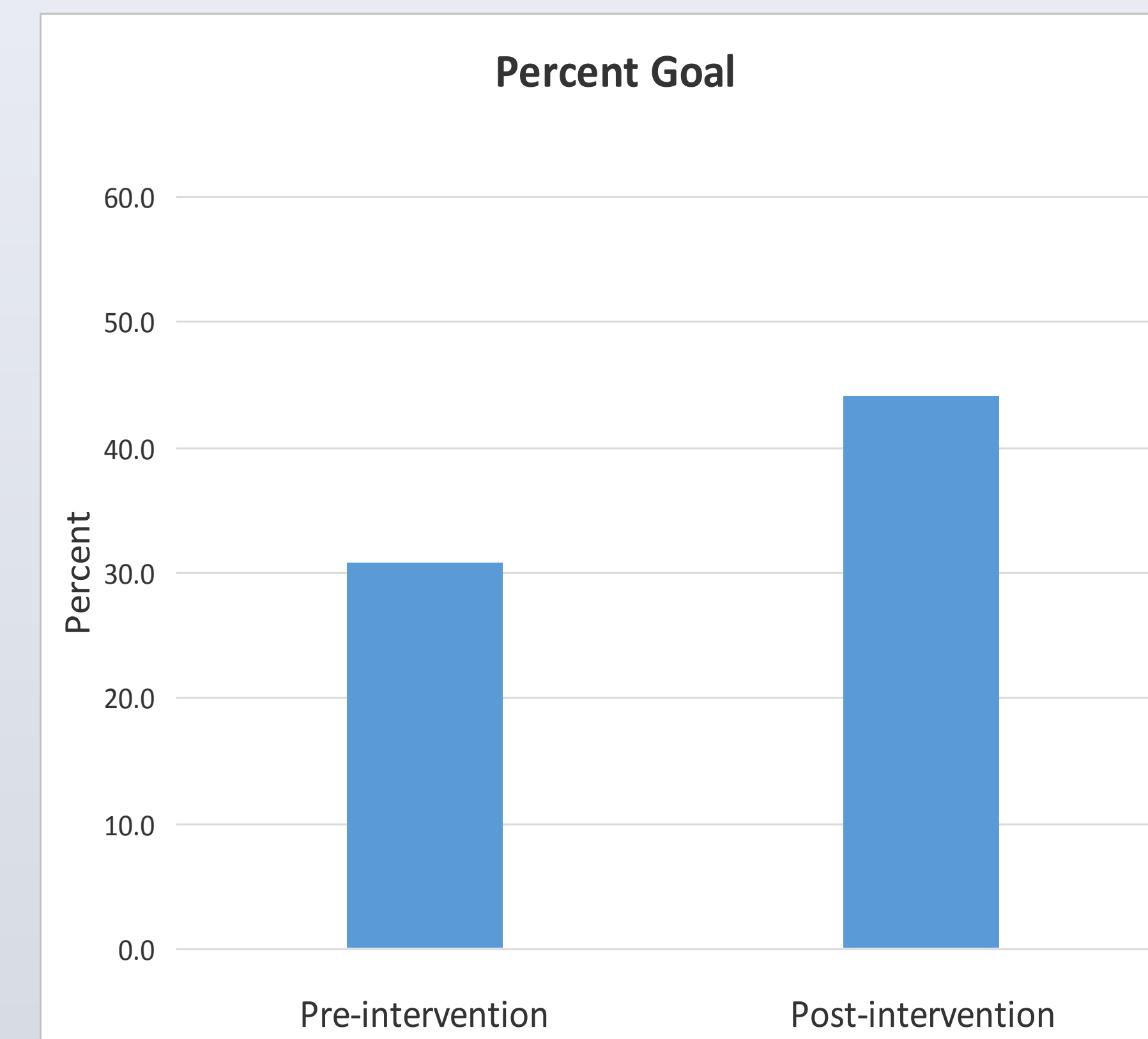
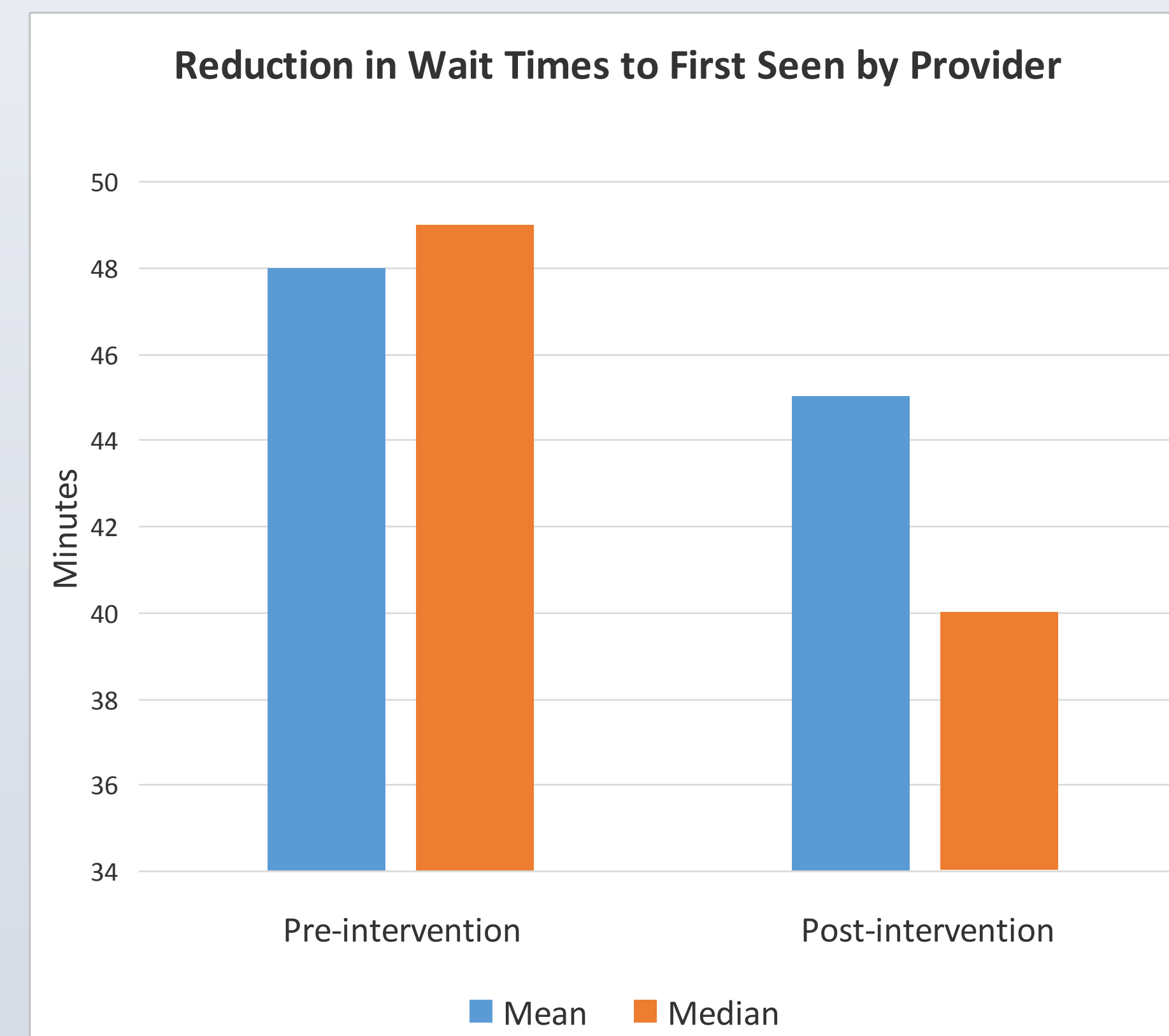
We formed a collaborative, multidisciplinary team consisting of residents, nursing staff, medical assistants and administration in order to fully understand the process by which a patient receives services at GMAP. A process map was constructed outlining the workflow from patient arrival to check-in, intake, and evaluation and staffing by resident/attending and finally, checkout. Mini-interviews were conducted with Medical Assistants (MAs) and nursing staff and an Ishikawa (fishbone) diagram was constructed to identify potential causes of delays in patients being seen by physicians.

### Real-time process monitoring to identify root cause :

Upon arrival at the clinic, patients were ‘checked-in’ by the front desk staff. The check-in process was complete when the front desk staff updated patient arrival in a patient tracking software called ‘IDX’. The patient then waited in a holding area before being called by the MAs for the intake process, which involved taking vitals and a brief history. The MAs used a different software program called “NextGen” to monitor patient flow and could only call patients for intake and vitals when marked as “arrived.” Residents shadowed front desk staff and MAs during the check-in and intake processes respectively, and time taken for each process was recorded. The greatest delay occurred in the holding area, with patients waiting an average of 17 minutes.

## INTERVENTIONS

The use of different software systems and lack of synchronization was identified as a reason for delays in the intake process. In order to standardize the process for monitoring patient flow, we decided to implement usage of the same software from check-in to intake. MAs were given access to IDX and provided with a dedicated laptop to monitor patient flow. They could now start intake with vitals and brief histories as soon as front desk staff marked a patient as “Arrived” and no longer had to wait for this information to be updated in NextGen. The intervention was introduced in the first week of January 2014.



## MEASUREMENTS

A unique, patient-driven evaluation tool was utilized to measure process times before and after the above intervention. A form was provided at check-in to patients to record arrival time, appointment time, time placed in exam room, time first seen by provider, and checkout time. This data was entered into a spreadsheet and analyzed on a weekly basis. A “percent goal” value was calculated for each day the data was collected, representing the percentage of patients seen within 30 minutes of their scheduled appointment time or their arrival, whichever was later. This, along with the average time from appointment to being seen by provider was plotted on run charts to analyze effectiveness of the intervention.

## RESULTS

Prior to the intervention, the average time from appointment time to first being seen by provider was 48 minutes. Following intervention, this decreased to 45 minutes. Percent goal increased from 30.7% to 44.1%. Median time to being seen decreased from 49 minutes to 40 minutes post-intervention, a reduction of 18.4%. Individual data points for percent goal and time from appointment to patient being seen by provider remained highly variable from day to date with no clear trends. Percent goal for the first two days data were collected, prior to intervention, were high at 50% and 75% respectively. These data points likely represent outliers.

## DISCUSSION

The intervention, use of IDX to inform MAs when patient is checked in and ready for intake, was well received. It is not provider dependent, reduces the likelihood of patients being missed, provides better real-time updates, reduces delays between the front desk and intake room, and has improved patient satisfaction. Though the average time from appointment time to first being seen by provider did not change significantly due to outliers, the median interval decreased by 9 minutes or 18.4%. The percentage of patients attaining the proposed goal also increased significantly (13.4%) following intervention. Office staff is still in early stages of adoption of the new system and percent goal has the potential to improve with time. Fishbone diagrams continue to be explored to identify other opportunities for improvement in the GMAP patient care process to improve quality and timeliness of care. Interventions are ongoing, such as moving desktop computers into exam rooms to expedite patient care.