

Diagnostic Imaging Staff Optimization

Maryam Aljaseem, Al Mahdi Bokhait, Faisal Binsaeed
Professor Nina Miville
Department of Industrial Engineering



Abstract

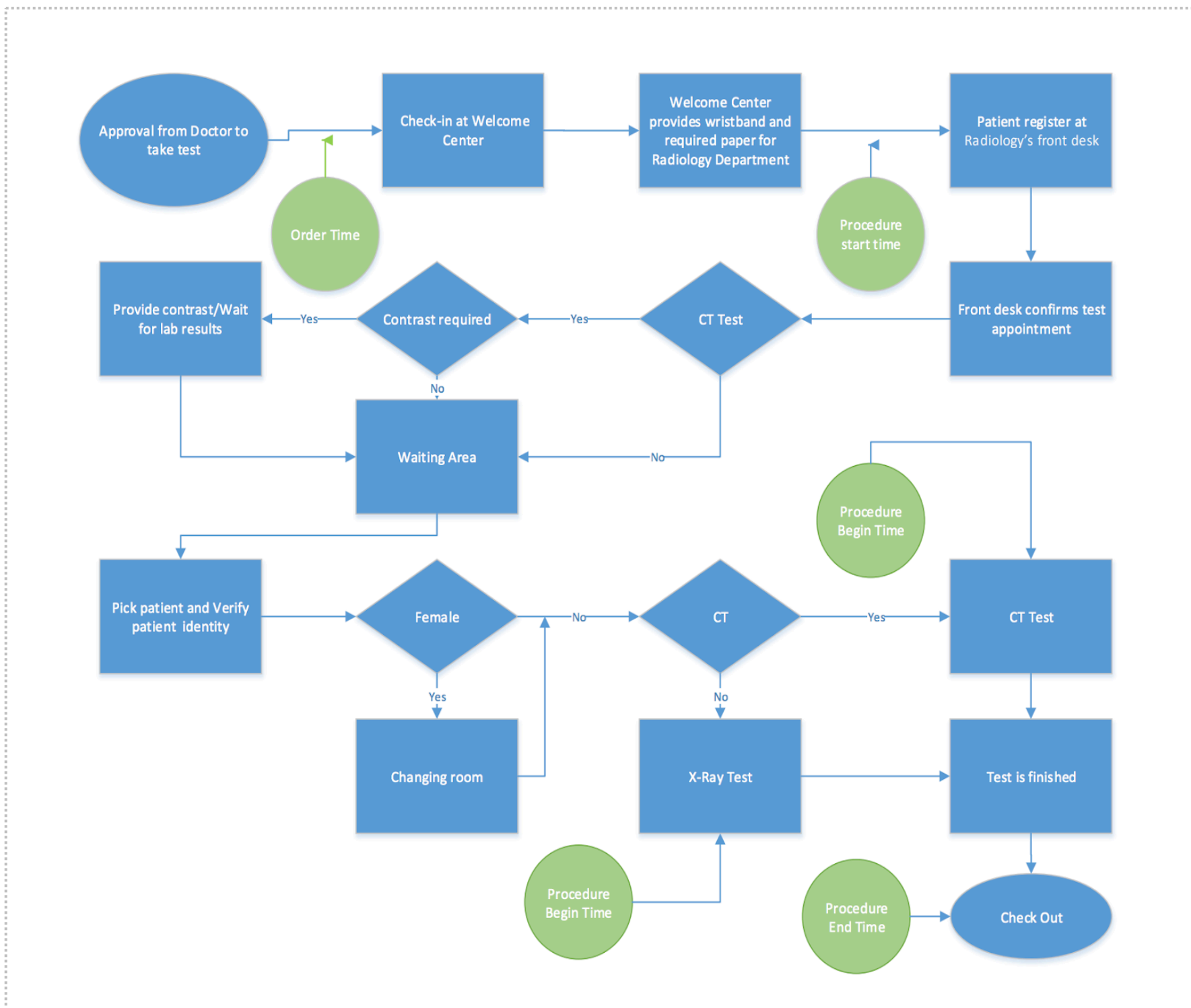
The team was assigned to evaluate, prioritize and request workflow improvements and repairs on issues that exist in the department. This evaluation may serve as a useful reference to Mount Sinai Medical Center (MSMC) and other hospitals following process steps with patients at the diagnostic radiology department which is an essential part in any hospital.

Introduction

The objective of this project is to determine the accuracy of the national benchmarking assessment MSMC received.

Current process

Figure shown below illustrates the process flowchart for the outpatient process to the Radiology department.



Methods | Design | Analysis

Data acquired by client was used to design a study to determine inefficiencies on current process

- Time slots analysis was performed
- Use of CT and X-Ray orders and Kronos data were involved in the analysis

	Sunday	Monday	Tuesday	Difference Wednesday	Thursday	Friday	Saturday
1	-4773.9	4945.05	7782.19	-1299.89	7130.74	6089.56	9389.05
2	1344.19	2579.5	6274.21	8240.2	9032.64	10918.92	11044
3	3834.01	5668.72	8172.16	9453.61	11209.7	10405.69	13702.97
4	3700.86	4088.83	6664.09	9714.44	11159.31	11718.4	14533.04
5	4368.09	5649.07	7649.77	9311.6	11157.98	11972.58	13971.78
6	2917.75	4924.33	3499.26	4321.99	4724.27	6611.02	9546.88
7	5475.12	10342.07	14637.98	16056.12	17304.73	18143.25	16038.83
8	10754.97	14313.46	19115.07	19652	20800.64	24785.17	20457.63
9	11334.61	13808.34	17881.97	18859.84	18762.06	18986.74	18946.09
10	10843.71	14059.45	16393.12	17436.31	19394.26	19347.9	17593.05
11	10241.37	9556.67	10532.86	16004.8	16958.32	18111.77	18227.61
12	9992.81	10553.89	10974.16	15528.7	17621.58	17778.26	18304.75
13	9972.15	15687.92	14338.39	18531.9	20683.13	19634.98	17914.46
14	10923.83	6770.12	15374.16	14992.02	17599.59	16522.29	17841.89
15	7174.76	4881.93	14943.67	16533.15	15954.92	19351.22	16065.08
16	12478.98	13836.32	18724.45	18263.75	20948.16	21107.57	20503.02
17	11936.9	10430.64	10679.3	15855.18	15949.93	15267.66	20062.47
18	12104.76	11673.85	11214.74	14393.99	14214.48	17308.55	19756.4
19	12307.65	11523.09	13554.49	14975.91	17497.48	17443.4	20671.29
20	13744.24	12207.01	14042.86	15130.15	17160.95	17027.09	22399.47
21	13383.79	10853.31	11447.11	12931.02	14620.16	15457.8	20971.18
22	13059.23	9383.3	10403.13	12025.08	14094.3	14888.8	21691.57
23	11278.45	11641.49	11833.61	13000.55	14643.44	16117.38	20637.42
24	6131.45	15444.77	16830.97	19036.21	19965.6	18856.62	15198.98
						Total	37152.92

Results

Objective of analysis was intended to find if the department is either overstaffing or understaffing, differences between demand minutes and availability minutes have been calculated resulting in a positive value which is an indicator for overstaffing trend based on the data given by client.

Conclusion

To conclude, project met improvement objectives by suggesting several recommendations to MSMC Diagnostic Imaging department.

Recommendations includes:

- Considering implementing a Real-Time Location System (RLTS)
- Communication improvements by utilizing IT services in the department and reducing manual work.

Acknowledgments

Mount Sinai Medical center, Department of Industrial Engineering- University of Miami



References

- CALIFORNIA HEALTHCARE FOUNDATION, April, 2011, Using Tracking Tools to Improve Patient Flow in Hospitals, <https://www.chcf.org/wp-content/uploads/2017/12/PDF-UsingPatientTrackingToolsInHospitals.pdf>
- Ankur M. Doshi , William H. Moore, Danny C. Kim, Andrew B. Rosenkrantz, Nancy R. Fefferman, Dana L. Ostrow, Michael P. Recht, Oct, 10, 2018, Informatics Solutions for Driving an Effective and Efficient Radiology Practice, <https://doi.org/10.1148/rg.2018180037>
- Bryan, Barbara. October 2009. "Keep 'em Moving: Nine ES Strategies to Help Improve Patient Flow." Health Facilities Management 22 (10); 35 – 37.

