

## Six Sigma Yellow Belt Project Charter

<b>Project Name</b>	Optimizing Appointment Scheduling to Minimize Gaps and Maximize Revenue
<b>Today's Date</b>	05/05/2025
<b>Project Start Date</b>	05/05/2025
<b>Target Completion Date</b>	06/05/2025

Project Element	Response
<b>Problem Statement</b> <ul style="list-style-type: none"> <li>Includes time, measurable item, gap and business impact</li> </ul>	<p>Currently, the appointment schedule shows an average of 15% of appointment slots going unfilled per week (measurable item, gap). This results in an estimated \$5,000 per week in lost revenue (business impact). Analysis of historical data shows that 20% of patients cancel their appointments with less than 24 hours' notice, and these slots are difficult to fill (time)</p>
<b>Business Case</b> <ul style="list-style-type: none"> <li>Why is this project important to do now?</li> <li>What is the project's financial impact?</li> <li>What is the impact on DPMO/ Sigma level?</li> <li>What is the impact on customer service</li> </ul>	<p>This project is crucial now because the increasing financial pressure on the clinic requires maximizing revenue from available appointment slots. Additionally, unfilled slots represent a missed opportunity to provide timely patient care, potentially impacting patient satisfaction and health outcomes.</p> <p>Reducing unfilled slots by 50% would result in an estimated increase in weekly revenue of \$2,500, totaling \$130,000 annually. This does not include potential revenue from new patients who can be seen sooner.</p> <p>By reducing the number of unfilled slots (defects), we will decrease the Defects Per Million Opportunities (DPMO) related to scheduling inefficiency. This will improve the sigma level of the scheduling process, indicating a higher level of process capability.</p> <p>Optimizing the schedule will allow for more efficient appointment booking, reducing wait times for patients who need to be seen. It will also minimize the frustration of patients whose appointments are canceled and not replaced, leading to increased patient satisfaction.</p>

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<b>Goal Statement</b> <ul style="list-style-type: none"> <li>• Specific</li> <li>• Measurable</li> <li>• Achievable</li> <li>• Realistic</li> <li>• Time-bound</li> </ul>	To optimize the appointment scheduling process by reducing the number of unfilled appointment slots by 50% and increasing weekly revenue by \$2,500 within the next 12 weeks.		
<b>List of Improvement Goals</b> 1.Reduce unfilled appointment slots. 2.Increase weekly revenue 3.Decrease # of appts canceled 4.Develop a predictive model to identify appointments at high risk of cancellation 5.Implement a double-booking protocol for high-risk appointment slots, balancing risk and potential revenue gain	<b>Measure (units)</b>	<b>Baseline</b>	<b>Goal</b>
	Unfilled Slots	15%	7.5%
	\$ per week	10k	10.5k
	# of appointments	8	4
	none	none	none
<b>Process</b> <ul style="list-style-type: none"> <li>• Describe the process in which the problem exists</li> </ul>	none	none	none
		The current appointment scheduling process involves patients contacting the clinic via phone or online portal to request appointments. Staff manually enter these appointments into the electronic health record (EHR) system. Cancellations are handled on an ad-hoc basis, with staff attempting to fill the slots, often unsuccessfully. Double-booking is rarely used and not based on data-driven decisions.	

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<b>Project Scope</b> <ul style="list-style-type: none"> <li>What part of the process will be addressed?</li> <li>What are the boundaries of the project or process?</li> <li>What areas are inside or outside the team's focus or authority?</li> <li>Attach a SIPOC diagram if necessary</li> </ul>	<p>This project will address the appointment scheduling process from the point of a patient scheduling an appointment to the point of the appointment occurring (or not occurring due to cancellation). It will specifically focus on analyzing historical appointment data, cancellation patterns, and slot utilization</p> <p>The project boundaries include:</p> <ul style="list-style-type: none"> <li>Analyzing appointment data from the past 6 months.</li> <li>Developing a predictive model for appointment cancellations.</li> <li>Implementing a revised double-booking protocol.</li> <li>Measuring the impact of the changes on revenue and slot utilization over a 3-month period after implementation</li> </ul> <p><b>Inside:</b> Data analysis, predictive model development, protocol design, implementation of the new scheduling protocol, and measurement of results.</p> <p><b>Outside:</b> Changes to physician schedules, marketing efforts to attract new patients, and changes to the electronic health record (EHR) system (unless minor and directly related to data extraction).</p> <p>Not necessary.</p>												
<b>Team</b>	<b>Member Name</b>												
Project Sponsor	Regional Vice President												
Key Stakeholders	Population Health Director / Regional Director of Operations												
Team Lead	Data Scientist/Analyst												
Team Members	Lead Clinical Informatics Specialists												
Process Owner	Practice Manager												
Other													
<b>Timeline by Project Stage</b>	<table border="1"> <thead> <tr> <th>Milestone</th><th>Target Completion Date</th></tr> </thead> <tbody> <tr> <td>Define</td><td>Project Charter and kickoff</td></tr> <tr> <td>Measure</td><td>Define and collect data</td></tr> <tr> <td>Analysis</td><td>Find causes</td></tr> <tr> <td>Improve</td><td>Fix causes</td></tr> <tr> <td>Control</td><td>Standardize the fix</td></tr> </tbody> </table>	Milestone	Target Completion Date	Define	Project Charter and kickoff	Measure	Define and collect data	Analysis	Find causes	Improve	Fix causes	Control	Standardize the fix
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Expectation	Example	Team Rule
Attendance	<b>Attendance is required at all team meetings. Changes in meeting times must be made at least 24 hours ahead of time.</b>	All members will attend scheduled meetings on Mondays at 10:00 AM unless prior notification (at least 24 hours) is given to the Team Lead. If a scheduling conflict arises, the member is responsible for catching up on missed information.
Participation	<b>Team members may not be substituted unless approved by team leader.</b>	Each team member will actively contribute their expertise during meetings and complete assigned tasks by the agreed-upon deadlines. The Data Scientist will lead data analysis discussions, and the Practice Manager will provide insights into daily operations.
Focus	<b>We will stay on task and on topic, using the Project Charter as our guide. A meeting agenda will be published at least one day in advance.</b>	Meeting agendas will be distributed by the Team Lead via email by Friday afternoon each week. Discussions will refer back to the Project Charter's objectives and scope to ensure we remain on track.
Interruptions	<b>Interruptions for emergencies only. Phones turned to silent.</b>	During meetings, team members will silence their mobile phones and only take calls for urgent matters. Designate a "parking lot" to jot down off-topic ideas for later discussion.
Preparation	<b>All deliverables are expected to be completed in a timely manner. Each meeting will have a published agenda.</b>	Team members are expected to review the meeting agenda and any pre-reading materials (e.g., data analysis reports, process maps) before each meeting. The Data Scientist will prepare data summaries for review.
Timeliness	<b>Meetings will begin promptly as scheduled.</b>	Meetings will commence promptly at 10:00 AM. Members should log in or arrive a few minutes early to ensure a smooth start.
Decisions	<b>We will choose the best decision-making method for each situation. We will support decisions made by the team.</b>	For most decisions, we will aim for consensus. If consensus cannot be reached, the Team Lead will facilitate a vote, and the majority decision will be supported by all team members. Critical decisions impacting resources or scope will require Project Sponsor approval.
Data	<b>We will rely on data to make decisions.</b>	All recommendations and proposed changes will be supported by data analysis conducted by the Data Scientist. The team will collectively review and interpret the data to inform our decisions.



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Expectation	Example	Team Rule
Conflict	<b>We welcome honest disagreements, as long as everyone is treated with respect. A facilitator will be used if conflict cannot be resolved.</b>	We encourage open and respectful debate of ideas. If disagreements arise, team members will actively listen to understand different perspectives. If a resolution cannot be found within the team, the Project Sponsor will be consulted for guidance.
Other		

Team Member	Role	Signature
Neil Truskolaski	<b>Data Scientist</b>	<b>NT</b>
Kasha O.	<b>Population Health Director</b>	<b>KO</b>
Nikki F.	<b>Regional Director of operations</b>	<b>NF</b>
Amy Q.	<b>Regional VP</b>	<b>AQ</b>
Angel V.	<b>Lead CIS</b>	<b>AV</b>
Michelle M.	<b>Practice Manager</b>	<b>MM</b>

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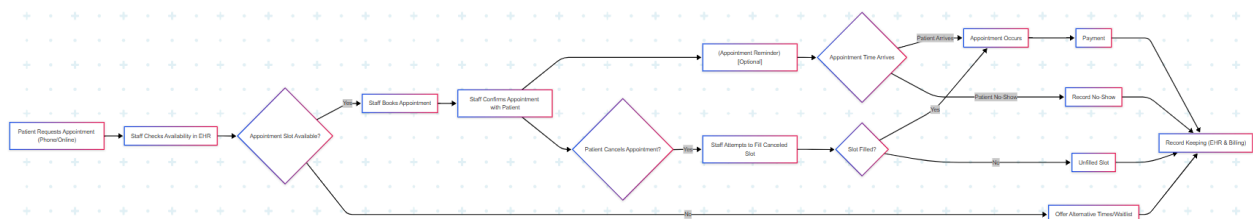
### Data Collection Plan

To create a robust data collection plan, we need to define what data to collect, the type of data, and how to collect it. Here's a more detailed plan:

	A	B	C	D	E	F	G
1	Metric	Data Type	Collection Method	Collection Frequency	Sample Size	Data Source	Responsible Party
2	Appointment Slot Status	Categorical (Nominal)	EHR system report	Daily	All slots	EHR database	Data Scientist
3	Cancellation Time	Quantitative (Continuous)	EHR system report	Daily	All canceled appointments	EHR database	Data Scientist
4	Cancellation Lead Time	Quantitative (Continuous)	EHR system report	Daily	All canceled appointments	EHR database	Data Scientist
5	Patient No-Show Status	Categorical (Nominal)	EHR system report	Daily	All appointments	EHR database	Lead Clinical Informatics Specialists
6	Double-Booking Occurrence	Categorical (Nominal)	EHR system entries	Daily	All slots where double-booking is applied	EHR system	Practice Manager
7	Revenue per Slot	Quantitative (Continuous)	Billing system report	Weekly	All closed appointments	Billing system	Practice Manager

### Process Map

Here's a basic process map for the current appointment scheduling process:



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### 5. Hypotheses

Here are the null and alternative hypotheses:

- **For unfilled slots:**
  - H0: The proportion of unfilled appointment slots will not decrease after implementing the new scheduling process.
  - Ha: The proportion of unfilled appointment slots will decrease after implementing the new scheduling process.
- **For revenue:**
  - H0: The average revenue per week will not increase after implementing the new scheduling process.
  - Ha: The average revenue per week will increase after implementing the new scheduling process.
- **For cancellation lead time:**
  - H0: The average cancellation lead time will not change after implementing the new scheduling process.
  - Ha: The average cancellation lead time will increase after implementing the new scheduling process.

### 6. Reflection on Lessons Learned

The Yellow Belt training provided a foundational understanding of the DMAIC methodology, which was crucial for this capstone project. The emphasis on data-driven decision-making was particularly relevant as we aimed to optimize the appointment scheduling process.

Creating the process map highlighted the complexity of the current system and helped identify potential areas for improvement. The data collection plan exercise reinforced the importance of collecting accurate and relevant data to inform our analysis and validate our proposed solutions.

This capstone project demonstrated the value of teamwork and cross-functional collaboration. By combining the expertise of the Practice Manager, Lead Clinical Informatics Specialists, and the Data Scientist, we were able to gain a comprehensive understanding of the problem and develop a targeted solution.

In the future, I will apply the DMAIC methodology and the tools learned in the Yellow Belt training to other process improvement projects. I will also emphasize the importance of clear communication, stakeholder engagement, and continuous monitoring to ensure the success of these projects.



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