

# Tissue Continuous Improvement & Utilizing Lean Six Sigma; Deceased Donor Medical Records Process

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Versiti has long embraced Continuous Improvement (CI) believing it is a mindset enabled by a flexible toolset aimed at raising the level of organization-wide performance and serves as a bridge between employees' daily work and their problem-solving needs. Under the CI umbrella are numerous methodologies to drive ongoing improvements and we will focus on the combination of two, Lean and Six Sigma. Lean focuses on reducing waste and non-value-added activities while promoting standardized work; whereas Six Sigma reduces variations, optimizes processes and, ultimately, improves accuracy. Combine to create Lean Six Sigma (LSS) a concept that relies on collaborative team efforts to improve performance by systematically removing waste and reducing variation. LSS is separated into three distinct levels or belts and this abstract will focus on the introductory yellow-belt certification.

A yellow-belt certification project introduces the DMAIC (Define, Measure, Analyze, Improve and Control) methodology by building problem-solving capability to reduce waste (Lean) and variations (Six Sigma) from our processes. My yellow-belt project was born from a need to reduce waste and errors in our process for obtaining pertinent donor medical records and information post-recovery, which downstream promotes more transplanted tissues resulting in more recipients' lives impacted. The COVID-19 pandemic forced Versiti to quickly transition to a hybrid work model while still utilizing a process for obtaining and compiling donor chart information that relied on physical charts and varying levels of in-person work. We also transitioned to a new donor management software during this time which had a significant impact on how the tissue staff performed their daily duties. To adapt, multiple checklists and spreadsheets were created as a band-aid solution, leading to an increase in charting errors impacting tissue screening staff, quality assurance staff, and ultimately, tissue recipients.

Initially, I had only identified that issues existed in our deceased donor medical record process, evidenced by documentation errors and delays, but unsure where to specifically focus my attention. I attempted to independently create a current state map, but it proved challenging knowing much variation existed in the process between tissue screening staff. Instead, in a collaborative environment a Value Stream Map (VSM) was done to create a visual guide of all the components necessary to deliver a product or service. Each step in the process was documented to include any process variations while identifying the 'pain points' associated with each step. The VSM identified multiple shortcomings in our deceased donor medical record process but one pain point reigned paramount: the amount of double documentation per donor chart. (See Fig. 1)

To substantiate the claim of excessive double documentation a sample was taken of donor charts throughout the entire process of obtaining and compiling pertinent donor information up until submitting for internal quality assurance review. The data supported the team's complaint regarding double documentation and provided the framework for the yellow belt project.

The problem statement was identified as from 6/1/22 to 6/10/22 there were an average of 44 documentation points per donor for obtaining donor information, post-recovery, with 24 points being double documentation. The findings identified that on average 55% of our documentation points in this process were considered wasteful, a figure greater than could have been imagined. The objective statement or my goal for the project became to reduce double documentation for deceased donors from 24 points to 4 points by 8/1/22 without adversely impacting the quality assurance team in errors and donor chart corrections. If achieved, the objective statement would reduce our double documentation by an average of 83%, having an impact on time, spending, and staff attitudes.

After having the problem and objective statements identified, an understanding of the root cause of the double documentation problem needed to be determined before any appropriate solutions could be implemented. In another collaborative setting, a Fishbone Diagram was utilized to identify the double documentations' potential root causes. The various causes were then grouped into major categories to classify the sources of variation. By only considering factors within our control, we determined that an unclear process, multiple documentation locations, and personnel with varying skills sets doing work differently were the overarching root causes. (See Fig. 2)

As a result, two process improvements were generated that reduced waste, supported the objective statement, and addressed the problem's root causes. The first was to fully redevelop our process by consolidating four documentation locations and fully utilizing the many features of our donor management software. Secondly, work instructions were created to outline each step of the deceased donor medical record process and provide an order for how and when each step needs to be completed. Included was a visual instruction guide of how to save the pertinent donor information found via electronic access to our various hospital partners' medical records. The process standardization means all duties can be completed by all hybrid tissue staff regardless of experience level or physical location.

I decided to pursue this yellow belt project to help alleviate frustrations held by the tissue screening staff surrounding our internal deceased donor medical records process and specifically the exuberant amount of double documentation throughout. As an organization Versiti was already meeting, and exceeding, our processing partners chart metrics, surprising given how convoluted our process had become. The processor chart metric, while not our primary concern, served as an effectiveness check for what process characteristics must remain unchanged.

The objective was to reduce double documentation by 83%, or to only have 4 remaining instances. The effective usage of LSS tools and principles provided a better-than-expected result, with the new process change there is an average of 27 documentation point and zero instances of double documentation. A 100% elimination of double documentation points and a 61% reduction in overall documentation points. The process was rebuilt to meet current work models and work instructions were created to promote process standardization. We found the changes generated by the yellow-belt project so impactful for deceased donors that similar changes were applied to our birth tissue medical record process. The final savings are estimated to be around \$5,000 annually; although, our focus was centered on improving our primary customer's overall experience and after months of use our tissue screening staff is more efficient and uniform when performing our deceased donor medical record collection process. (See Fig 3)

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**Problem Statement:** From 6/1/22 to 6/10/22 there were an average of 44 documentation points per donor for obtaining donor information, post-recovery, with 24 points being double documentation.

**Background:** The COVID 19 pandemic forced Versiti Organ and Tissue to transition into a hybrid work model (mixture of in-person and remote work) while still utilizing a process for obtaining/compiling pertinent donor information that relied on physical charts and in-person work. Versiti adopted a new donor management system during this time, and to adapt to various pieced together processes, multiple post-donation tracking checklists and spreadsheets were created leading to an increase in chart delays and errors.

**Objective Statement:** Reduce the double documentation for deceased donors from 24 points to 4 (83% decrease) by 08/01/2022 without adversely impacting the Quality Assurance (QA) team in errors and donor chart corrections.

**Methods:** To complete this project, the continuous improvement process, Lean Six Sigma Yellow Belt, was utilized. Through this process, the training focused on exposure to different tools to help analyze a problem, identify root causes, and create solutions. This process identified three main root causes including an unclear process (lack of work instructions), multiple documentation points and tissue staff doing work differently with varying skill sets.

In reviewing all available countermeasures, the decision was made to eliminate 3 of the existing documentation locations and move the entire process into the donor management system. Standardized work instructions were developed to help all staff, regardless of experience, complete the post-donation tasks the same way each time. The ability to fax remotely allows for faster turnaround of important donor information and supports a hybrid work model. Finally, various templates were created to ensure the same information is being requested for each donor, every time.

**Final Results:** The multiple process changes resulted in an average of 27 documentation points with 0 instances of double documentation (a 100% reduction)!

This process improvement has been applied to our birth tissue program too!

	Overall documentation points	Instances of double documentation
Previous process	44	24
New process	27	0

Graphics can be found on following pages

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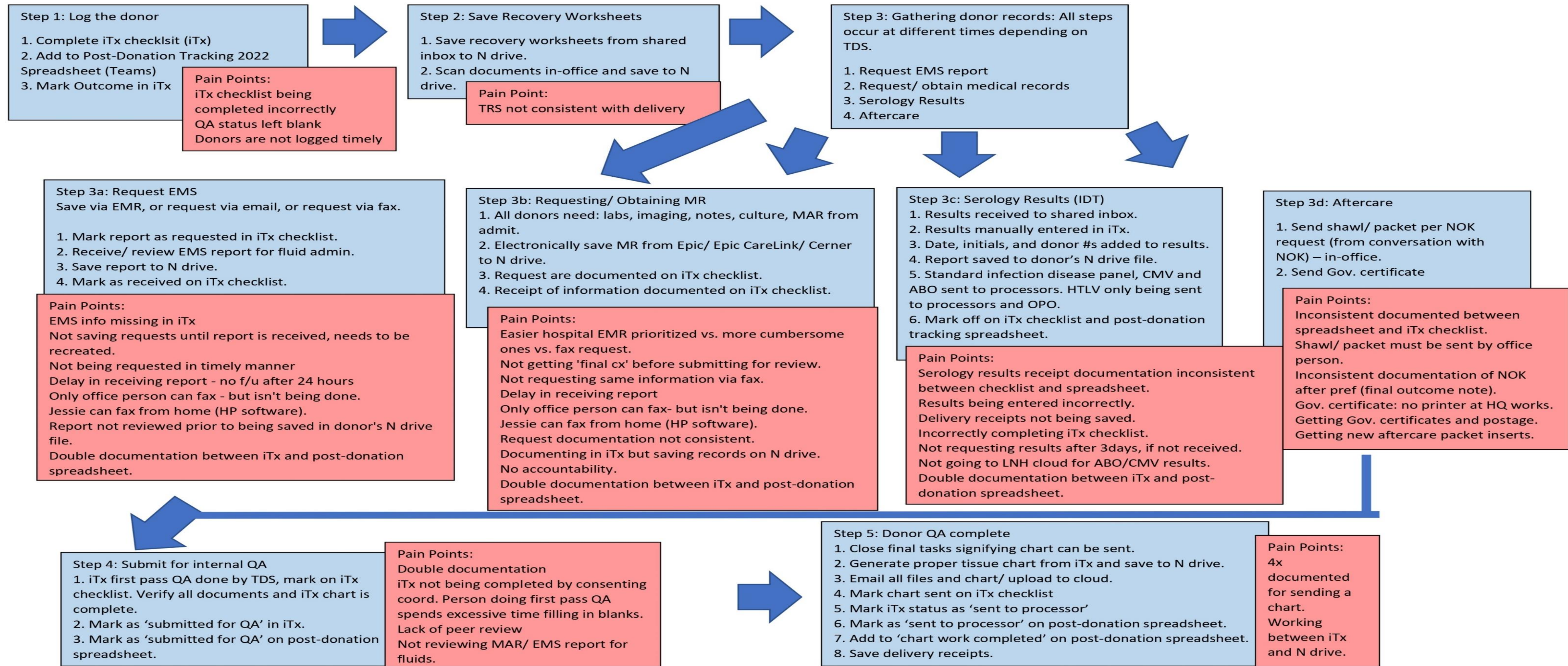


Figure 1: Current State Value Stream Map. The process steps are blue and pain-points are red.

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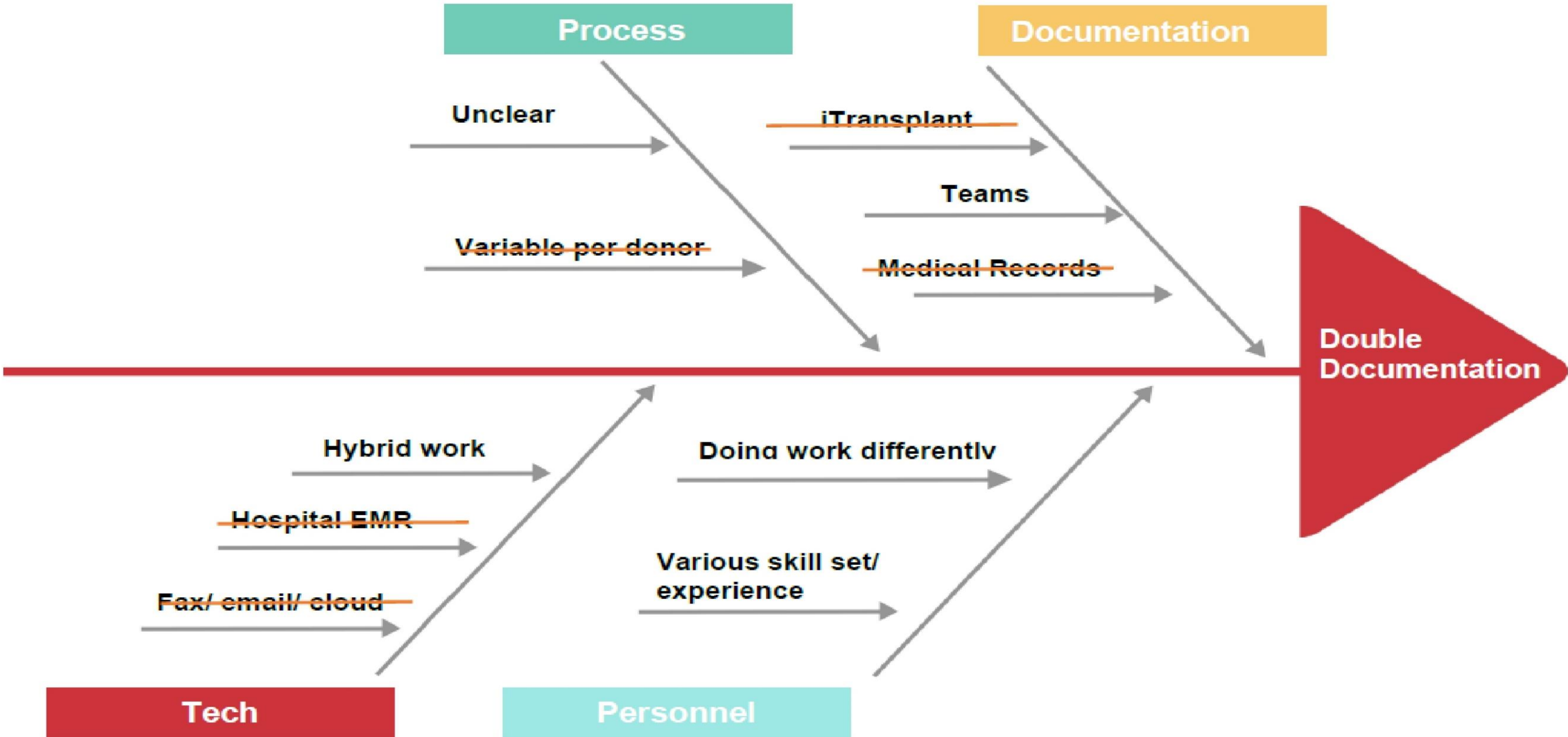


Figure 2: Fishbone Diagram, a visualization tool for categorizing the potential causes of a problem. Potential causes outside of our control were notated by a strikethrough.

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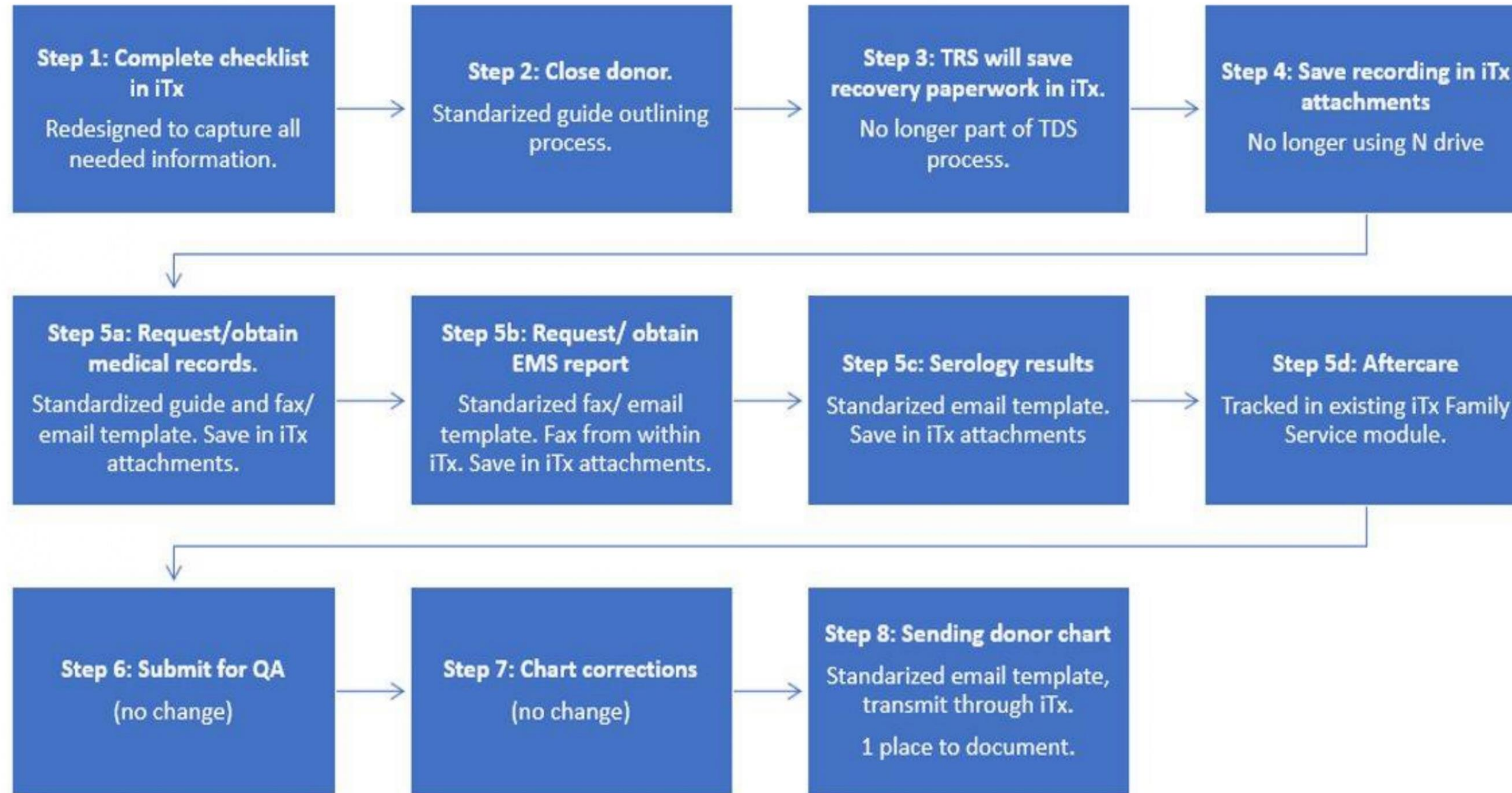


Figure 3: Future State Map