

Intro

Much of the day to day of Strategy and Operations here at Clipboard Health consists of making adjustments to the marketplace we run, usually via marketplace interventions or direct product features. We propose these adjustments via Working Backwards Documents, a device popularized by Amazon. Here's our internal guide to [writing a working backwards document](#) and an actual [example from a previous feature](#) (note the example is way longer than yours needs to be, but demonstrates the level of detail we strive for).

We are so excited to work on this challenge with you because it's an accurate simulation of what it's like to work together (both for you and for us). You'll write a Working Backwards Document, and, just like how we operate internally, your next two conversations will be a WBD Review.

We hope to have great conversations as a result of this challenge, and hope that you have a lot of fun.

The Challenge

When healthcare professionals cancel their shifts, there's an immediate strain placed on healthcare facilities. Will someone else take the shift? Can the facility find one of their full time staff members to pick up that shift that they thought was booked? At the end of the day, facilities need to be confident that their building will be staffed. On the flip side, one of the main reasons that healthcare professionals pick up shifts on our platform is that they have the flexibility to work when and where they want. How do we balance the needs of the healthcare professionals and healthcare facilities to create an optimal experience for both?

The most painful cancellations are last-minute cancellations (or worse, "no-call-no-shows"). We've even identified a relationship between facility churn and late cancellation behavior.

Facilities don't place the blame on the healthcare professional that canceled; they place the blame on us, and rightly so. It is our responsibility to ensure that booked shifts are worked 100% of the time; so, how do we get there?

Please write a working backwards document (WBD) outlining your proposal on how we can improve marketplace reliability (specifically, healthcare professional reliability). Although our solutions to this problem are already in production, we are excited to see what you come up with and also encourage you to think from first principles! Try to keep it to roughly 4-6 pages.

What You'll Need

You'll likely want to know more about how the marketplace is currently operating to form your own mental model.

Data

- In this [“Data” folder](#), you can find the below:
 - Shift data for one of the metropolitan statistical areas in which we have a presence
 - A list of cancellation logs for shifts that were canceled by HCPs
 - A list of shift claim logs
- We define the fields in these files below

Assumptions and Business Context

- The most damaging type of cancellation for the HCF is one in which the HCP does what we call a “No-Call-No-Show”; this means they canceled the shift after the shift started or otherwise did not show up to the shift and did not inform Clipboard or the facility of their absence
- The top reasons why HCPs cancel shifts last minute are: sick, family emergency, transportation issue (e.g. car broke down), facility issue
- From interviews, the most important things to HCPs are: will there be shifts that fit my erratic schedule, that are close enough to home, that pay enough, and that pay on time?
- HCPs currently receive a set of notifications prior to their shift to remind them of their upcoming shift

You should generally feel free to make whatever assumptions you’d like – our ask is just that you state them (and outline your reasoning as to why they’re reasonable assumptions).

Some assumptions you can take from us as given:

- While we don’t have a fixed take rate, you can operate under the assumption that our average take is 22%
- Both No-Call-No-Shows and Late Cancellations (Cancels that happen <24 hours prior to shift start) are correlated with facility churn – the former is more painful, but the occurrences of the latter are more common
- The data references Cleveland, but you can assume that we’re deep in ~20 metro areas – like most local marketplaces, each market has different dynamics
- In mid-2021, we launched an attendance policy – this policy moved the needle incrementally, but we still had critical problems with cancellations, late cancellations and no-call-no shows (i.e., what we tried didn’t work)
 - That policy was defined as the below
 - No-Call-No-Shows:
 - 1 NCNS → 1-week suspension, 2nd NCNS → 1-week suspension; 3 NCNSs → deactivation
 - Call-Offs:
 - Defined as: cancellation_lead_time < 4 hours from shift start time
 - 2 Call-Offs → 1-week suspension; 4 Call-Offs → deactivation
 - Standard Cancellation:

- Defined as: 4 hours \leq cancellation_lead_time \leq 72 hours
 - 6 cancellations → 1-week suspension
- You should assume that the data you're seeing exists within the context of this policy
 - If you see an HCP "violate" the aforementioned policy, it's likely because offenses were excused by a team that manually triaged attendance cases

Don't hesitate to reach out via email if you have any questions or seek other context.

Mental Models

We're outlining these here to shed some light on how we may read your submission. We try to make much of our culture content public, but we realize there's a lot out there. If you haven't read, I'd read:

- [High Quality and Fast](#) (Product Team Standards)
- [Idea to Production in Eight Hours](#)

And here's a shortlist of questions or mental models that we'll be thinking about as we read your submission:

- Is this the highest "effect size" thing we can do to solve the problem at hand? Are we jumping to the end or only making incremental changes?
- If you're trying to bundle multiple features into one "solution", do each of them have their own independent second order effects? If "yes", then you're going to have a hard time achieving the level of detail you need for one WBD (and we'd bet that attempting to reason through multiple in one document is a recipe for mistakes).
- Are you clearly walking the reader through your reasoning? Are you being intellectually honest in how you're evaluating your proposed solution?
- Internally at Clipboard Health, managers exercise "WBD review" as a point of control – meaning, we expect managers to go through iterations of a given WBD with the author
 - Once the document passes the manager's quality bar, we have a live table read
- At Clipboard we like to say "there are no toes", which means that it's impossible to step on other peoples' toes because nobody has toes to begin with
 - Translation: don't feel constrained in your solutioning. If your solution requires specific action from a peer team like ops / support / trust & safety that's totally fine - define exactly what you want from that team.

Data Details

Each row in your **shift data** is a shift; the following are helpful descriptions of columns within that dataset:

- "Agent ID": HCP ID

- “Facility ID”: HCF ID
- “Start”: The shift start time
- “Agent Req”: the type of HCP that is being requested for this shift
- “End”: The shift end time
- “Shift Type”: specifies if the shift is in the morning (AM), afternoon (PM), overnight (NOC), or custom (CUSTOM)
- “Deleted”: Whether the shift was deleted
 - Note “deleted” means “canceled by facility”
- “Created At”: When the shift was created
- “Charge”: Per hour charge rate
- “Time”: How many hours the shift lasts
- “Verified”: Indicates that the shift was worked, as confirmed by a signed timesheet

Each row in your **cancellation logs** is a unique cancellation event; the following are helpful descriptions of columns within that dataset:

- “Action”: The type of cancellation action
 - “WORKER_CANCEL”: The HCP canceled a shift they booked
 - “NO_CALL_NO_SHOW”: The HCP canceled a shift they booked after the shift commenced or otherwise did not show up to the shift and did not inform Clipboard or the facility about their absence
- “Created At”: When the action took place
- “Facility ID”: HCF ID
- “Worker ID”: The ID of the HCP that was previously associated with the shift
- “Shift ID”: The shift ID
- “Lead Time”: The time from “action” to “shift start” (in hours)

Each row in your **shift claim logs** is a unique booking event; the following are helpful descriptions for columns within that dataset:

Note that we only included claim actions for a subset of the date range in the “shifts” data. Thus, there are likely shifts that don’t have associated claim actions. That’s OK, we’re only providing this data so you can observe HCP booking behavior.

- “Action”: The type of booking action
 - “SHIFT_CLAIM”: The HCP instantly booked the shift. As soon as they booked the shift, it was theirs.

If you run analysis we’d love to see that analysis as an appendix (doesn’t have to be clean or in “presentation form”, even a bunch of graphs without commentary is more than sufficient).

Final Words

The best working backwards documents are very specific and thoughtfully wield data. When we write WBDs internally, there should be enough detail for someone else to start writing code immediately after reading your document. We don't expect you to achieve that level of detail, but we do expect you to outline key interactions. Note that you are not "making a recommendation" or "helping the effort" - you are the owner, you and your engineering team will build this, so you must make all the decisions. (This is a good simulation of what it's like to work here).

Please ask any questions you have along the way. Once complete, please submit your Working Backwards Document (and any associated analysis if you did any) and we'll go from there!