

Data Visualization Competition

Participant Handbook



MEDECINS SANS FRONTIERES
DOCTORS WITHOUT BORDERS

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TIMELINE

- Feb 3 Data released
- Feb 12 Q&A call (12-1pm ET)
Submit questions [here](#) by Feb 11
- Feb 24 Submissions due
- Mar 6 Finalists notified
- Apr 2-3 Wharton People Analytics Conference

CONTEXT

To deliver lifesaving medical care in over 70 countries, Médecins Sans Frontières (MSF)/Doctors Without Borders relies on people. MSF's global workforce is comprised of over 45,000 people working in country projects (the 'field') and headquarter (HQ) offices managed by Operational Centers.¹

Approximately 10% of MSF's global workforce is made up of International Staff (commonly referred to as 'expatriates') that perform temporary (medical and non-medical) assignments in MSF's country projects. International Staff are mostly new hires to MSF selected by recruiting teams across the globe. International staff move between assignments, positions, pools,² countries, projects, HQ and field, Operational Centers, etc. Staff build experience at MSF through movement and by working in various roles across the organization. This movement is rarely straightforward, and while there are some typical pathways, the career trajectory of highly experienced MSF staff is often non-linear.

Because MSF operates in some of the most challenging places in the world, the role of Coordinators is central to successful operations in the field. Coordinators manage MSF missions at the country level and are the decision-makers on the ground; they report directly to Senior Management in HQ. They are typically based in the country's capital, and oversee and direct all MSF field sites/projects in the country. Coordinators play a key role in the design, implementation, and evaluation of project activities in medical, logistical and administrative areas. They respond to evolving humanitarian needs and are responsible for team management, staff safety, external representation and security. As MSF is a medical organization, the Medical Coordinator ('MedCo') is one of the most critical coordinator roles in the field. MedCos identify and address hidden or unforeseen medical needs of the populations MSF serves by designing and implementing new medical humanitarian activities, thereby saving more lives. A well-placed MedCo could also have a long-term impact on MSF field operations by developing a strong operational vision over the short and medium term which can determine the trajectory of MSF projects in the long-term. To become a MedCo, a medical background is essential. However, as the medical humanitarian landscape becomes increasingly complex, operational experience has also become essential for effective leadership. Over the last decade or so, this has changed how people move through the organization, build experience and grow into the MedCo role. Lastly, while it is possible to recruit people directly into Coordinator roles, this has rarely been successful and MSF strongly prefers to develop them internally.

1. Operational Centers are the offices which decide when, where, and what medical care is needed. These centers are based in: Brussels, Paris, Amsterdam, Barcelona, and Geneva. The Operational Centers can act independently, but all layers of MSF interconnect and work together in various ways, and are formally bound as one movement by a shared name, a shared commitment to the MSF Charter, and shared membership of MSF International.

2. Pools represent international staff that are grouped together by a common profession, skillset or other similarity. This is how MSF divides its large workforce so that it is more manageable.

COMPETITION PROMPT

The visualization challenge

In early 2018, MSF launched the People Analytics project to leverage data science to address the problem of shortages and gaps of Coordinator positions in the field, with specific focus on MedCos. The team was tasked with using data science to develop a forecasting tool for HR leadership. One of the first steps the team took to better understand the movement of International Staff was to plot the career path from the first field assignment onwards to better understand how people move between assignments and roles on their way to becoming a Coordinator.

Because of the irregular and complicated career paths MSF employees follow, understanding the trends, patterns, and characteristics of their movement is especially challenging. Focusing on MedCos, the various paths a staff member can take from their first mission to their last is enormous. The MSF People Analytics project approached this by looking at the first pool staff members were a part of. The next step was finding the number of people from this pool who went on a next assignment as a member of another pool. For example, suppose 600 people joined the MSF team and went on a first assignment as Nurses. Of those 600, some will go on a second assignment. They may go as Nurses again, or they may go as medical team leaders or even in a non-medical role. As this group of people gains more experience they will move into more pools, sometimes circling back or staying in one spot. Eventually a few of them will become MedCos. Much of the People Analytics team's work to date has focused on finding how many people move between each pool at each step in their MSF career and using this to make predictions about the number of MedCos grown. However, the story doesn't stop there. Just as interesting is what staff members choose to do after they become MedCos.

Given the complexity of all these possible paths, visualization will be an excellent tool for communicating the patterns that exist in this data set. Your task is to craft a clear, creative, compelling, and informative visualization that gives insight into movement and career paths of medical coordinators from their first mission to their last and into key positions such as the MedCo role.

As you explore this dataset, keep in mind that the nature of humanitarian work is reactive and that MSF is always changing. We constantly evaluate the effectiveness of policies and programs and respond to the changing medical humanitarian landscape. Over the last ten years (from January 2009 to present), several major efforts to standardize HR policies and practices have been carried out, thus it has been considered a period of relative stability with respect to the way projects are staffed and how individual careers develop at the organization.

Dataset characteristics

The dataset you will be using to create this visualization holds one MSF assignment per row. All individuals that were included in this data went on their first assignment with one OC as International Staff on or after January 1, 1996. This means that only staff who's full departure history is available are in the data. There are 37,893 individual assignments. These assignments were completed by a total of 11,671 staff members. The earliest departure date is January 1, 1996 and the most recent is July 29, 2019. Each row has the following fields:

- **staff_id**: A unique identifier for each International Staff member
 - **assignment_number**: The number of assignments a staff member has gone on, including the current assignment. In this dataset, all assignments are with one Operational Center.
 - **departure_date**: The date the assignment began
 - **return_date**: The date the assignment ended
 - **assignment_country**: The country the staff member worked in
 - **pool**: This column holds the pool (or job family) that a staff member was a part of on that mission. The pools we use are:
 - **MEDCO: Medical Coordinator**
 - **DEPUTY MEDCO**: Deputy Medical Coordinator, assists the MedCo
 - **GAS**: Gynecology, Anesthesiology, and Surgery medical providers (includes Nurse Anesthetists)
 - **MD**: Medical doctors other than GAS pool members
 - **NURSE**: Nurse
 - **MIDWIFE**: Midwife or childbirth assistant
 - **MTL**: Medical Team Leader, coordinates medical care at the project level, reports to the MedCo at the country level.
 - **OTHER**: Medical professions not included in any other pool
 - **PC**: Project Coordinator, responsible for all non-medical operations at the project level
 - **NON MEDICAL**: staff in other roles that don't require medical knowledge
- There are 5,911 assignments without a pool associated with them due to missing information on the function held during that assignment.
- **job_title**: The job title held by the staff member during the assignment
 - **age_bracket**: The age range of the staff member at the time of the assignment
 - **sex**: The recorded sex of the staff member at the time of the assignment
 - **first_departure**: Whether or not this was a staff member's first departure on assignment with this Operational Center. This field has the values:
 - **First departure**: This indicates the staff member has never worked with MSF or a similar international humanitarian medical organization as a field worker;
 - **First departure, relevant experience**: This indicates the staff member has never worked as an international staff member with MSF, but has worked in the field in a humanitarian medical context (either with another NGO or as a national staff member, for example).
 - **Not first departure**: This indicates the staff member has worked as an international staff member with MSF, most likely at another Operational Center.

JUDGING CRITERIA & SUBMISSION DETAILS

Judging criteria

Submissions will be judged based on the following criteria.

Quality of insights:

- Is the visualization informative? (Does it create knowledge MSF didn't have before?)
- Are relevant insights easily extracted?
- Is the visualization easy to translate into quantitative/qualitative facts?

Communication:

- Does the viz effectively communicate an overall purpose, message, and story?
- Is it tailored to the right audience?
- Is it easy to use and understand? Does it flow logically?

Creativity

- Is it innovative and creative?
- Is there an appropriate balance between creativity and functionality?

Submissions

All participants are required to submit by 11:59pm EST on February 24, 2020. Each submission must contain a memo and the visualization itself.

Visualization

- If your visualization is dynamic or requires interaction, please submit a link that is publicly accessible
- If your visualization is static, please submit it in the form of a pdf or ppt document

Memo (max 2,000 words):

- Summarize any manipulations made to the data
- Walk us through the methodology behind the visualization (e.g., what tools did you use, why did you choose particular views, etc)
- Outline key findings and insights based on the analysis, including images to support the insights where appropriate
- Highlight recommendations for MSF

The link for submission will be shared with all participants after the Q&A call.

Finalists

Each team's analysis will be judged based on the criteria listed above, and 3-5 teams will be chosen as finalists to present on-stage at the Wharton People Analytics Conference in Philadelphia on April 2-3.

Finalist notifications will be sent by March 6, 2020. Finalists will be invited to present their submissions at the People Analytics Conference on April 2-3, where their findings will be assessed by a panel of judges comprised of MSF representatives and academic and industry experts. All team members are encouraged but not required to be present for the final presentation.

If you have any questions or concerns, please feel free to reach out to us at WPADDataVizComp@wharton.upenn.edu