



# E-PARCC

COLLABORATIVE GOVERNANCE INITIATIVE

Syracuse University

Maxwell School of Citizenship and Public Affairs

Program for the Advancement of Research on Conflict and Collaboration

## **DeBola: A Prisoners Dilemma Game for NGOs**

### **SIMULATION**

#### **Scenario and game synopsis**

DeBola is a simulation-game constructed as a teaching-tool for the topics of conflict analysis and resolution, collaborative problem solving, negotiation and decision-making. Specifically, it does so in the context of NGOs and mission-driven organizations.

DeBola involves four NGOs working on health missions in Africa. The four have been diverted to combat an outbreak of Ebola. The NGOs are tasked to administer a new, effective, Ebola vaccine called DeBola, in an attempt to turn back the tide of Ebola's spread. However, there are operational constraints, and over multiple iterations, the NGOs must make decisions with regards to their operative path. In the framework of a Prisoners Dilemma structure, the four NGOs must decide whether to collaborate or compete with one another, in a situation rife with uncertainty. Their decisions are made in individual and collaborative problem-solving environments. Collaboration might lead to greater joint success in conducting vaccination operations. However, given that each NGO's funding is contingent on its own success in administering vaccines, each NGO is also pulled towards working alone. The outcome of their decisions affect them all, determining their organizational longevity and the degree to which they will achieve their mission. Often, these two factors conflict with each other - reflecting a real-life tension faced by aid organizations, non-profits, government agencies and other mission-driven organizations. For a more detailed introduction to the simulation-game, see 'Simulation-game overview for teachers', on p. 7.

This simulation was written by Noam Ebner, of Creighton University School of Law. It was a winning simulation in E-PARCC's 2016-2017 Competition for Collaborative Public Management, Governance, and Problem-Solving Teaching Materials. The case is intended for classroom discussion and not to suggest either effective or ineffective responses to the situation depicted. It may be copied as many times as needed, provided that the authors and E-PARCC are given full credit. E-PARCC is a project of the Collaborative Governance Initiative, Program for the Advancement of Research on Conflict and Collaboration- a research, teaching and practice center within Syracuse University's Maxwell School of Citizenship and Public Affairs. [https://www.maxwell.syr.edu/parcc\\_eparcc.aspx](https://www.maxwell.syr.edu/parcc_eparcc.aspx)

## **Key learning objectives**

- Illustrating, experientially, the complexity of generating cooperation in situations intuitively grasped, or objectively seen, as competitive.
- Introducing the challenges of decision-making, collaboration, and organizational survival in the specific context of NGOs and mission-driven, non-profit organizations.
- Enhancing participants' ability to identify key obstacles and pathways to forming collaboration, including trust, communication and relationship building.

## **What makes DeBola unique?**

There are quite a few Prisoners Dilemma games available for teachers to use, some of which have become quite popular over the years. DeBola goes beyond these games, in five important ways:

### **NGO focus:**

Prisoner's Dilemma games usually focus on economic decisions, and are usually situated within business contexts. Parties, charged with achieving the best financial outcome for themselves, must consider whether the best way to gain the most, with the financial outcome being the sole marker of success.

DeBola may well be the first Prisoners Dilemma simulation-game set in the context of NGOs, mission-driven organizations, development and aid work. Such organizations face quandaries extending beyond the 'how can we profit the most?' They exist in a tension between operating as a business, staying afloat and paying the bills on the one hand - and saving lives, helping people and improving the world on the other. This tension - faced by many other bodies, including many forms of non-profit organizations as well as government agencies - sometimes brings organizational survival and mission into direct conflict. Any decision to be made, therefore, has both financial and mission-accomplishing outcomes. DeBola brings this reality to a point.

### **Role identification and game realism:**

Prisoners Dilemma games involve, in essence, bringing players to an identical decision point, multiple times. In order to do so, most games tend to limit the information provided to a basic cover story that provides the rationale for that decision. Relying on the assumption that anyone can relate to 'make as much money as possible,' they suffice with making this information available to both parties - and do not provide individual instructions to each team with its own individual background. This has the benefit of keeping the game targeted and focused; on the other hand, it also maintains a sense of artificiality, forgoing participant identification with the scenario and their role in it; it may also inhibit their sense of agency. While DeBola can be played this way, it also offers the opportunity to engage participants with the scenario at a deeper level, through role identification and agency. To achieve this, not only is private

information provided to each of the four NGOs in addition to the shared general information; each individual player also receives information of his or her own.

### **(1) Priming for cooperation or competition:**

Prisoners Dilemma games plant participants in a specific context and game structure, but try to avoid influencing participants towards cooperation or competition. DeBola's basic structure goes the same way. However, it takes into account that in reality, some areas of operations, industries or locales might tend more towards competition, or towards cooperation, than to others. Teachers may prefer to take this into account, while using a simulation-game to teach. Teachers may also wish to experiment with priming students towards a certain type of behavior, in order to provoke rich classroom discussion of the behavior and of the priming effect. To this end, the simulation-game incorporates three possibilities for priming, including alternate instructions for teachers and participants (see below, 'Game variations', on p. 17).

### **(2) Four-party game for large-group work**

Most simulation-games based on the Prisoners Dilemma theme are designed around two parties, or two small teams, facing off against each other. While this allows for intense interactions, it dictates that a group of participants must be divided into sub-groups, each participating in a simulation-game of its own. This poses challenges for an effective common debriefing session, and results in differentiated learning across participants.

DeBola, conversely, is designed for four parties, each comprising a group of up to six players (three roles are provided, with instructions for creating others as required), allowing a single game to up to accommodate 24 players. This design, besides driving home the complexity of multi-party engagements, allows DeBola to engage large groups in a single experience, which can then be debriefed by the group as a whole. This sets the stage for the formation of a shared group memory, and a shared language that will serve the group in the future, throughout the course of its training period.

### **(3) Pseudo-reality**

Rather than set participants in a clearly fictional scenario, which has little or nothing to do with their own experience, field of activity or knowledge of world events, DeBola employs the pseudo-reality method of simulation-game design (Ebner & Efron, 2005).<sup>1</sup> This method situates simulation scenarios in real-world events, using certain details to enhance participants' motivation, familiarity and

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<sup>1</sup> Ebner, N. & Efron, Y. (2005). [Using tomorrow's headlines for today's training](#): Creating pseudo-reality in conflict resolution simulation-games. *Negotiation Journal* 21(3), 377.

identification - but augmenting this with fictional elements that accommodate a particular storyline or temper overly negative elements of the real-world situation. DeBola is situated in the ongoing battle against the Ebola outbreak that has been plaguing African countries since 2014. The simulation-game and draws on the harsh realities of combatting the disease, and the heroic efforts of aid agencies and volunteers, in order to create realistic emotional and cognitive connections between participants and the situation. On the other hand, the scenario introduces a fictional ray of hope - an effective vaccine for Ebola. At the time of writing, while several vaccines are undergoing testing, none have yet been proved to be effective, and none have been approved for widespread use beyond limited testing purposes.

## **Logistics, Setup and Game Management**

**Target audience:** Generally speaking, DeBola can be used with undergraduate and graduate students in the social sciences, law and management as well as managers in corporate training settings. Specifically, though, DeBola has been designed for use with students and trainees focusing on non-profit management; public management; aid, health and development work; peacebuilding; peacekeeping; and conflict resolution. [Despite this game posing students a situation based on the Prisoners Dilemma, they need no prior knowledge of this concept in order to participate. Should teachers wish to introduce this topic as part of the game's debrief, recommendations for doing so, and for introducing real-life cases involving Prisoners Dilemma characteristics from their course's source material so, have been provided in the Teaching Note.]

- Preparation and setup time: 20 minutes
- Playing time: 45 minutes
- Debriefing time: 45-60 minutes
- Debriefing Format: Interactive discussion
- Number of participants: 8-24

**Materials required for participants:** Each NGO receives the General Information and Forms:

- DeBola - Background Information (1 copy per participant),
- DeBola - Distribution Decision Forms (1 copy per NGO team)
- DeBola - Vaccinations Summary Sheet (1 copy per NGO team)

Additionally, assuming the full version of the simulation-game is being played (see 'Game Variations', below p. 17)

- Each NGO receives its respective Private NGO Information (preferably, one copy for each player)
- Each individual player receives the Individual Information assigned to his or her role.

### **Materials required for facilitator:**

- A copy of each of the documents above, as well as a copy of this section, for in-game instructions on managing the simulation-game.

### **Equipment / room requirements:**

- A relatively large room is preferable, to allow the four groups to form their own clusters while keeping some distance from one another. A classroom or management training room that can be set up with 4 round tables, one in each corner, is perfect for this exercise.
- An empty cup or a small box, for placing monthly decisions in
- A whiteboard is suggested for debriefing purposes.

### **Simulation game overview for teachers**

DeBola is a four-party negotiation/conflict/problem-solving simulation, in which participants must recurrently decide whether to adopt a cooperative stance or a competitive strategy towards one another. Participants are formed into groups, each of which is comprised of different members of an NGO's leadership and staff. To reflect real-world dynamics, the make-up of these teams, and the titles of the characters, are not identical across teams.

The four NGOs are involved in a mission to combat Ebola in Benunu, an African country. The organizations have been given a powerful tool to complete that important mission - the first effective anti-Ebola vaccine, DeBola. However, together with their eagerness to succeed at this mission, each of the NGOs is aware of the risk they are facing. None of the NGOs are originally from the Ebola field, and their shift to this mission means cutting themselves off from their traditional sources of funding. New funding - critical for each organization's survival - is dependent on visible success in the anti-Ebola operation. Visible success is measured in the number of vaccines that an NGO has administered. In a nutshell - the more vaccines an NGO has administered, the more it can depend on securing funding.

However, this need for visible success has the potential to set the NGOs at odds with each other, and their desire for organizational success and survival against their overall commitment to improving health in Benunu.

Due to administrative and security challenges, distribution of the vaccinations is constantly slow and threatened by disruptions from militia groups eager to get their hands on the vaccinations. While the government can provide a Centralized Distribution Point, and provide it with sufficient operational security, once a month, this will allow each NGO to conduct only a limited number of vaccinations. It may be, that one or more of the NGOs could conduct more vaccinations if they went off into the field on that same distribution day, and administer vaccines at local villages. On the other hand, if they all do so, the potential for their operations being disrupted by militia groups rises. Each month, therefore, they need to decide whether they will arrive at the CDP, or go off on their own. Essentially, this is a choice between and NGO cooperating with the other NGOs (by arriving at the CDP), or acting competitively on its own (by distributing in the field). Each month (corresponding to each round of the game), all four NGOs makes this decision individually (as there is a lack of communications, accounted for in the

storyline). The outcome of each month in terms of vaccines administered, is then calculated according to a chart included in the general information. Each NGO's success in administering vaccines is dependent not only on its own distribution strategy, but also on those of the three other NGOs. In this manner, they are subtly placed in an iterated four-way Prisoner's Dilemma.

As the game progresses, new elements such as higher payoffs and improved communication are introduced, raising the stakes while enhancing parties' ability to work together - or to break faith with one another.

### **Simulation game management: Setup phase**

1. Divide the group into four teams of up to six participants each. If the group is larger than 24 participants, consider running 2 simultaneous games, each with four teams. Assign each group the name of one of the NGOs in the game: SaferWorld, EndMal, Shots for Tots and United Health.
2. Hand out role information - general, NGO, and individual - to participants (see 'Materials required for participants' on p. 7, and Game Variations, on p. 17).
3. Read through the General Information out loud, stressing the following points as you reach them or at the end as a summary:
4. No communication between NGOs (only inside each NGO team). This will be enforced by fines you may impose on teams who attempt any form of communication with each other. [Note: It is very rarely necessary to need to police this rule, beyond reminding participants of it once or twice during the game]
5. There are no other 'players' in the game. NGOs cannot negotiate or communicate with external parties (e.g., the Benunu government, donors, the UN, militias, etc.).
6. There are no other ways/times to administer the vaccines, other than those detailed in the game instructions. NGOs cannot decide to go out and boost their numbers by administering vaccines on any time but the designated days.
7. Each NGO has only one decision to make each round, and they make it anew before each round: Do we conduct our vaccination operations at the CDP this month, or do we conduct them in the field? Stress that there are no other choices, and they cannot combine the two options in any way.
8. NGOs cannot change the chart (e.g., by saying 'we will work twice as fast this month).

9. Point out that each team has a sheet of paper entitled Distribution Decision Forms. Instruct them to tear or cut it into 8 squares and write their NGO's name on each. Explain that each month, they will write their distribution decision on one of these slips and put it in the offer box.
10. Put a box or a cup on a table in the middle or at the front of the room, to serve as the offer box. Every month, each team will place its offer slip in the box. It is recommended that you do not go around the room collecting the slips, but rather let participants get up and bring them in themselves; the added motion and commotion adds atmosphere and involvement.
11. Explain the basic game dynamic: Every month you will request **distribution decisions** from the NGOs, giving them a certain amount of time to decide what to offer. Once time is up, each team must enter an offer slip with "CDP" or "Field" written on it, as well as the name of the team, into the box. Failure to enter a decision slip (or, in terms of the story - failure to conduct vaccinations) - is not an option. Once all decisions are in, you will take out the slips, announce the outcome (e.g., 'Three NGOs showed up at the CDP, and one went out into the field. '), and each team will enter the month's decisions as well as its running total of vaccinations on the form entitled DeBola - Vaccinations Summary Sheet. [Tip: It is recommended that you announce only the number of decisions of each type (Field / CDP), and not specify which teams that decided one way or another. They know who they are, and the suspicions (justified or not) that teams will harbor towards one another will make the game more interesting.]
12. Explain, that although the story may seem confusing, in the end all the information they need is summed up neatly in the chart appearing in the General Information; this chart details just what will happen in any given situation. Go over the chart briefly aloud, making sure it is understood.
13. During this explanation period, avoid letting participants ask questions, as this often has the effect of covert communication between teams. Promise participants that they will have time to review the General Information and any other forms you have handed out with their team, and that you will go around later and clear up any individual questions or misunderstandings.
14. Give participants 10-12 more minutes during which they are to read their group role (on their 'NGO Information' sheet) and their personal information, and conduct a group meeting. In the meeting, they need to cover the following ground:
  15. Making sure everybody understands the story and the chart,
  16. Deciding on the NGO's overall goal, in the upcoming engagements (ask them to write this down, in a sentence or two).
  17. Discuss their overall approach to the game
  18. Make their distribution decision for month #1.
  19. Fill out their month #1 form, and have it in the box before time is up.

20. As participants engage in their group meetings, travel around the room and answer any questions they may have. Remind them of the no communication rule, and of the time remaining until they need to have their decisions in.
21. At this point, participants might try to elicit a goal from you (e.g., 'But what do we need to achieve?'). Avoid answering this, leaving them responsibility for deciding their team's goal (e.g., 'It's your NGO, you decide that!'). For other approaches to setting goals, see 'Goals and targets', below, p. 18.

### **Simulation-game management: Runtime**

1. 2 minutes before the allotted initial preparation time is up, alert participants as to the time remaining, reminding them that in 2 minutes all teams must enter their first month's decision into the box.
2. Periodically (every 30 seconds or so), announce the amount of time remaining before offers must be placed. Make it clear that they must decide by that time (you can enforce this by imposing fines for late entries).
3. Extract the decision forms from the box and announce the outcome. Make sure all participants can track the outcome on the chart, and that each team enters the outcome on their balance sheet. Announce that in 2 minutes you expect to receive decisions for month #2. Repeat for month #3.
4. Before Month #4, make the following announcement :

"A group of nurses, trained by the World Health Organization to administer vaccines, is on its way to Sierra Leone. They have stopped in Benunu for one month, to receive fieldwork training. The nurses will be divided between the four NGOs, and will assist in the vaccination efforts in month #4. This will enable each NGO to double the amount of vaccines it is able to administer in a regular month.

### **As a result, the outcomes detailed in the chart will be doubled, for month #4.**

The WHO representative organizing the nurses' trip has invited you to send a representative to the nurses' training center in downtown Dandon City, to help conduct their local initiation. You don't really have time for this non-essential task, but you are mindful that should you choose to attend, there will probably be a few minutes during which you could grab the representatives of other NGOs for a talk, should they arrive and should you choose to do so."

Instructions for conducting month #4:

- a. Designate a 'training center', outside the room in which the simulation-game is being conducted. It could be out in the hall, or in an adjacent room.

b. Explain the following rules to the entire group:

- Each team must decide: Do they want to participate in such talks (they do not have to)? Who will represent them? What do they want him/her to say to the representatives of the other teams?
- Representatives of groups choosing to meet, meet at the 'training center'. While they negotiate outside, the no-communication rule still applies to the team members remaining in the room. They may communicate with people in their group. They have no assignment during this time.
- After the representatives return to the room (with an agreement, or because time has run out), they will rejoin their teams and update them on the talks. Two minutes later each team must place its offer in the offer box.

c. Give participants 4 minutes (no more) to complete all of the items mentioned above (deciding on participation, content and representative, leaving the room, conducting the meeting). Enforce the time limit, and return the representatives to the room. Once they rejoin their group, allot 2 more minutes for them to report on the meeting with their group, and for each group to decide its distribution decision for Month #5. Make sure that no further inter-group communication takes place, and that offers are handed in on time.

d. Announce the results, reminding participants of the doubled value of profits and losses. Enforce the non-communication rule, if necessary (if one or more teams have defected, participants might start shouting at each other, and you will need to actively enforce the non-communication rule).

e. Announce that the chart has returned to normal for Month #5, and that they have 2 minutes to enter their bids.

5. Conduct Month #5 as normal.

6. Before Month #6, make the following announcement:

“The Benunu government has been able to provide the decision-making teams of all four NGOs with safe passage to a meeting point between your offices, ahead of Month #6’s vaccination operations commence. Should you choose to use this opportunity to speak with one another for a limited amount of time, you may do so.”

Explain that for the duration of the next 4 minutes, the no-communication rule is lifted, and teams or individuals may speak to any teams or individuals they wish. They do not have to speak to anyone, of course but they may. When time is up, re-enforce the no-communication rule, have participants return

to their teams, and allot them one additional minute to deliberate with their individual group, decide, and hand in their decision forms.

7. Before Month # 7, make the following announcement:

“The United Nations has temporarily delegated small units of troops to provide each NGO with security for its operations. These troops will be available to escort each NGO for three consecutive days in month #7 and another three in month #8. As you still have your usual security budget, you can provide security for one additional day - thereby allowing you to carry out operations for four consecutive days in each of these months. This effectively quadruples the number of vaccines you would have normally administered. You have enough supplies on hand to handle any conceivable amount of vaccinations you might conduct.

**As a result, the outcomes detailed in the chart will be quadrupled, for month #7 and for month #8.**

As the troops arrive in-country ahead of month #7, they are housed in the ‘training center’ previously used by the nurses - where they are to be vaccinated for Ebola before commencing operations in Benunu. The UN has asked for a team from each of the 4 NGOs to arrive at the training center to administer vaccines.

Once again, you understand that this may provide you with an opportunity to have a talk with representatives from other NGOs, before months #7 and #8 get underway.”

Once again, explain the meeting rules to the entire group:

- They will be given four minutes, during which they can deliberate as a team and then, if they wish, participate in the meeting outside. The meeting ends, and participants must return to the room, at the end of these four minutes.
- As in the previous meeting-opportunity, each team must decide: Do they want to participate in such talks (they do not have to)? Who will represent them? What do they want him/her to say to the representatives of the other teams?
- Representatives of groups choosing to meet, meet at the ‘training center’. While they negotiate outside, the no-communication rule still applies to the team members remaining in the room. They may communicate with people in their group. They have no assignment during this time
- At the end of four minutes, any representatives outside will be called back to the room.

- The representatives return to the room (with an agreement, or because time has run out), they will rejoin their teams and update them on the talks. Allot them two more minutes for in-group deliberations, by the end of which each team must place its offer in the offer box.
- Between Month #7 and Month #8 there will be no time for talk, and no communication between the teams.
- The UN troops will be bringing their vaccinations kits with them, and the shots you give them do not count in your overall vaccination tally.

To summarize the time-progression: Give participants 4 minutes to complete all of the meeting-related items (deciding on participation, content and representative, leaving the room, conducting the meeting). Enforce the time limit, and return the representatives to the room. Once they rejoin their group, allot 2 minutes to for them to report on the meeting with their group, and for each group to decide its distribution decision for Month #7. Make sure that no further inter-group communication takes place, and that offers are handed in on time.

- Announce the results, reminding participants of the quadrupled chart. Enforce the non-communication rule, if necessary.
- Remind participants that the chart is quadrupled for month #8, and allow for 1-2 minutes of internal group-discussion prior to handing in decisions for month #8.

**Simulation-game management: Post-game and transition to debrief**

1. After announcing the outcomes for month #8, announce the end of the game.
2. Ask each team to total up their balance sheet for months # 1-8.
3. Meanwhile, draw the following chart on the board:

NGO	Month #1	Month #8		Sum Total
SaferWorld				
Shots for Tots				
EndMal				
United Health				

4. Ask teams what they offered in Month #1 and in Month #8, and enter it in the chart. Ask the teams what their final balance was, and enter the sums in the chart. This gives you good information, which you can use as an anchor while debriefing the game; it also provides a transitory phase between game and debrief. You can add on additional columns according to your training goals, or to highlight interesting game dynamics that occurred at particular points in the game, such as “Agreed-upon Strategy” or “Month #4” (you might choose to fill these in during the debrief, as writing them on the board now may trigger a premature discussion).

Some teachers might like to go so far as to capture the entire game on the board, before proceeding, to provide multiple touchpoints (and prevent arguments over ‘what happened’ during the debriefing phase. Such a board might look like this

Team	Outcome	1	2	3	4	5	6	7	8
SaferWorld	XY,000	F	F	F	F	F	F	F	F
Shots for Tots	X,000	CDP	F	F	CDP	F	F	CDP	F
EndMal	X,000	F	F	F	CDP	F	F	F	F
United Health	XY,000	F	F	F	F	F	F	CDP	F

At this point - focus participants only on providing these details, without analysis or comments. Promise you will get to that in a minute.

5. Once you have sufficient information on the board, proceed to debrief the simulation-game (see ‘Debriefing Guide,’ on p. 22).

# DeBola

## General Information

Benunu is a small country in Central Africa. After gaining independence from colonial rule in the 1960s, it enjoyed several decades of stability and democratic rule. Recently, however, things have deteriorated badly. A series of droughts dealt the country's agriculture a crippling blow, and a hungry and disheartened population found itself harassed by local militant bands and warlords.

With the outbreak of Ebola in 2014, several cases in Benunu were misdiagnosed. The disease spread, and there are currently over 1000 victims treated in the country's few hospitals. Health authorities anticipate this number to double itself, every month, with a high fatality rate. The only way to interrupt this cycle would be rapid vaccination of the entire population. Every person vaccinated would improve the odds of reversing the tide. However, at the outbreak of the disease, Ebola had no known vaccines, and no other remedy had any effect. Until DeBola.

DeBola is a vaccine for Ebola, developed through research conducted on blood samples of Ebola survivors. No one knows why these lucky people survived the disease, but by isolating the virus in its most weakened state, during the fortunate patient's final days of overcoming the disease - scientists were able to create a successful vaccine. This went through an expedited testing process, and has been approved by the Food and Drug Administration. Scientists from the World Health Organization (WHO), after reviewing the results of the lab work, have declared that the vaccine constitutes the turning point in the fight against Ebola. However, while these declarations make for formidable press conferences, things look quite different in the field.

DeBola can be administered in field conditions, but only by specially-trained medical personnel. An on-the-spot blood test and interview screen for the 1% of the population likely to have an adverse reaction to the vaccine, which could result in their death.

Four health-related NGOs operate in Benunu. Their personnel have been specially trained to administer a vaccine for malaria, with a procedure identical to the administration of the Ebola vaccine. These personnel are ready to switch immediately to combatting Ebola. The WHO has decided to operate only through these NGOs in Benunu, rather than send new personnel to the region - allowing it to deploy any newly trained personnel to other Ebola-stricken countries where there are currently no trained personnel. **You work for one of these four NGOs.**

Another inhibiting factor is the difficulty of ensuring that vaccines reach their intended recipients. Militant groups regularly intercept aid convoys, raiding the supplies, which they appropriate to feed their members or to sell, at exorbitant prices, to the civilian population. Given the widespread panic over Ebola, DeBola vaccines are worth their weight in gold to the militias.

Shipments of DeBola will reach the country on a monthly basis, and be divided equally between the four NGOs for deployment. Each NGO must decide its distribution plan, each month. The NGOs, with their experience disseminating malaria vaccines, all know the risks and benefits associated with the two options they have for distributing the vaccines. Each NGO could arrive at a government-declared, centralized distribution point (CDP) on the 10<sup>th</sup> of each month, or it can take its chances going out into the field that same day and distributing vaccines on its own, using the focus on the CDP as a diversion for its own efforts. Operating on any other day, or dividing the security budget up for multiple monthly operations, would simply be suicidal.

Each option has its risks and benefits. If all four NGOs arrive at the CDP, their combined security personnel can secure

the CDP for operation throughout the day, without interference. However, security measures and governmental bureaucracy imposed at the CDP slow down distribution; each NGO would only be able to conduct a limited number of vaccinations.

If three NGOs show up at the CDP, they can secure the area, but will suffer disruptions throughout the day and distribution will be lower. As the militants focus their efforts on the CDP, the NGO going out into the field on its own will be able to distribute a large number of vaccines.

If two NGOs show up at the CDP, militia attacks on the CDP will greatly limit the number of vaccines administered. The two NGOs going out into the field on their own will suffer the attentions of militia groups, but will still be able to distribute a significant number of vaccines.

If only one NGO shows up at the designated spot, it will not be able to conduct vaccination operations at all, for fear of putting the civilian population at risk. The other three NGOs, operating in the field, will be able to distribute some of their vaccines.

If none of the four NGOs show up at the CDP, the militias will soon realize that there are many targets out in the field to be preyed upon. This will prove highly disruptive to vaccination operations, and relatively few vaccines will be administered.

The following chart depicts the number of vaccinations conducted, based on the two distribution possibilities, for any given month:

	NGOs Choosing Field Distribution	NGOs Choosing CDP Distribution
4 field	2000	*****
3 field / 1 CDP	4000	0
2 field / 2 CDP	5000	1000
1 field / 3 CDP	8000	2000
4 CDP	*****	4000

Each month, your NGO must decide whether it will administer vaccines at the CDP, or head out into the field to one of the nearby villages. As if this decision wasn't challenging enough, it is impossible to coordinate with the other NGOs. The situation in Benunu has rendered land, cellular, satellite, and internet-based communication sketchy at best; you could just as easily be speaking to a warlord as to the head of another NGO - and would not know it until your convoy drove into a trap. You will need to reach your distribution decisions on your own.

# DeBola

## Distribution Decision Forms

<b>Month # 1</b>  NGO: _____  Distribution Decision: _____	<b>Month # 2</b>  NGO: _____  Distribution Decision: _____
<b>Month # 3</b>  NGO: _____  Distribution Decision: _____	<b>Month # 4</b>  NGO: _____  Distribution Decision: _____
<b>Month # 5</b>  NGO: _____  Distribution Decision: _____	<b>Month # 6</b>  NGO: _____  Distribution Decision: _____
<b>Month # 7</b>  NGO: _____  Distribution Decision: _____	<b>Month # 8</b>  NGO: _____  Distribution Decision: _____

# DeBola

## Vaccinations Summary Sheet

<i>Month #</i>	<b>Our Distribution Decision</b>	<b>NGOs in the field</b>	<b>NGOs at CDP</b>	<b>Running total - our NGO's overall vaccinations</b>
<b>1.</b>				
<b>2.</b>				
<b>3.</b>				
<b>4.</b>				
<b>5.</b>				
<b>6.</b>				
<b>7.</b>				
<b>8.</b>				
Our NGO's Total Vaccinations:				

## DeBola

### NGO Information: SaferWorld

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You work for SaferWorld, an NGO based in Dandon City, the capital city of Benunu.

SaferWorld has been operating in Benunu for the past 3 years fighting malaria, after a successful campaign in Mozambique. Your organization has always focused on malaria, but given the urgency of the Ebola situation, you've agreed to shift to fighting the outbreak for the foreseeable future. This was not a simple decision. Of course, saving lives is saving lives, and every DeBola shot you administer achieves this mission. Your entire staff is very excited about the upcoming operation.

However, you are focused on the bigger picture as well. NGOs are motivated by their mission - but they are fueled by donors, public recognition and networks. In this sense, sometimes running an NGO feels no different than running any other business: You need to polish your brand, deliver good services and satisfy your customers, or you will not last long in the market. Particularly, as there are other organizations operating in the same field, providing the same services, and looking to the same backers and donors for support and funding.

SaferWorld has been in the malaria field for the past 20 years. Its entire reputation is tied to this effort, and its ability to open doors for operating in different countries depends on this reputation. Most of your previous backers contribute only to malaria-related causes, and you are leaving those behind as you shift to fighting the Ebola outbreak. So, in order to continue operations, you need to succeed in the Ebola field in a way that you will be able to clearly present to the donors focusing on that area. Quite simply, your ability to raise donations is directly linked to the amount of vaccinations you perform. The more vaccinations, the more contributions you will receive, and the better you can ensure SaferWorld's continued operation - in completing the current Ebola mission and beyond. However, if you perform only a low number of vaccinations, your funding will gradually dry up and SaferWorld will cease to exist. In that case, not only will you be out of a job, but the NGO will not be around to provide its life-saving expertise to combat disease outbreaks in the future.

## **DeBola**

### **NGO Information: EndMal**

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You work for EndMal, an NGO based in Dandon City, the capital city of Benunu. EndMal has been operating in Benunu for the past year fighting malaria. However, given the urgency of the Ebola situation, you've agreed to shift to fighting the outbreak for the foreseeable future. This was not a simple decision. Of course, saving lives is saving lives, and every DeBola shot you administer achieves this mission. Your entire staff is very excited about the upcoming operation.

However, you are focused on the bigger picture as well. NGOs are motivated by their mission - but they are fueled by donors, public recognition and networks. In this sense, sometimes running an NGO feels no different than running any other business: You need to polish your brand, deliver good services and satisfy your customers, or you will not last long in the market. Particularly, as there are other organizations operating in the same field, providing the same services, and looking to the same backers and donors for support and funding.

EndMal is a relatively young NGO, which has been working in the malaria field for the past 5 years. Its entire reputation - literally, its name! - is tied to this effort, and its ability to open doors for operating in different countries depends on this reputation. Most of your previous backers contribute only to malaria-related causes, and you run the risk of losing those, as you shift to fighting the Ebola outbreak. So, in order to continue operations, you need to succeed in the Ebola field in a way that you will be able to clearly present to the donors focusing on that area. Quite simply, your ability to raise donations is directly linked to the amount of vaccinations you perform. The more vaccinations, the more contributions you will receive, and the better you can ensure EndMal's continued operation, in completing the current Ebola mission.

Beyond that, good performance in this mission will serve you well with your donors when you resume malaria-related operations - you will be able to demonstrate that you left the malaria field for a good cause, and conducted a successful mission.

However, if you administer only a low number of vaccines, your funding will dry up - and EndMal will cease to exist. Not only will you be out of a job, but the NGO will not be around to provide its life-saving expertise to combat disease outbreaks in the future.

## DeBola

### NGO Information: United Health

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You work for United Health, an NGO based in Dandon City, the capital city of Benunu. United Health has been operating in Benunu for the past year fighting malaria. Given the urgency of the Ebola situation, you've agreed to shift to fighting the outbreak for the foreseeable future. Saving lives is saving lives, and every DeBola shot you administer achieves this mission. Your entire staff is very excited about the upcoming operation.

Still, you are focused on the bigger picture as well. NGOs are motivated by their mission - but are fueled by donors, recognition and networks. Sometimes running an NGO feels no different than running any other business: You polish your brand, deliver good services and satisfy your customers, or you will not last long in the market. There are other organizations operating in the same field, providing the same services, and looking to the same backers and donors for support and funding.

United Health is a new NGO, and the malaria campaign in Benunu was its first mission. You had hoped for some solid achievements on this project; to save lives, and also to establish the NGO as a player in the field. You'd put this new reputation to work, opening doors for operating in different countries, and granting you access to donors. Most donors focus on one disease only, and your work in the malaria field was starting to resonate with malaria-focused donors. However, just as you thought the NGO was on its way to a solid financial future, the shift to Ebola came along. In the field of medical humanitarian efforts, such shifting between different diseases can sink an NGO. While the urgency of the situation required you to accept the mission, you need to work to ensure United Health's short and long-term financial stability.

In order to continue operations, you need to succeed in the Ebola field in a way that you will be able to clearly present to the donors focusing on that area. Quite simply, your ability to raise donations is directly linked to the amount of vaccinations you perform. The more vaccinations, the more contributions you will receive, and the better you can ensure United Health's continued operation, in completing the current Ebola mission.

Good performance in this mission, as measured by a high number of vaccinations you administer, may also serve you well with your donors when you resume malaria-related operations - you will be able to demonstrate that you left the malaria field for a good cause, and conducted a successful mission. It also opens the door for you to make a more permanent shift from malaria to Ebola operations, depending on which field offers more opportunities for operations. Administering a low number of vaccines, though, will lead to your funding drying up - with United Health ceasing to exist. Not only will you be out of a job, but the NGO will not be around to provide its life-saving expertise to combat disease outbreaks in the future.

## DeBola

### NGO Information: Shots for Tots

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You work for Shots for Tots, an NGO based in Dandon City, the capital city of Benunu. Shots for Tots has operated in Benunu for the past 5 years fighting malaria, after battling it in South Africa.

Your organization has always focused on vaccinating children against malaria, but given the urgency of the Ebola situation, you've agreed to shift to fighting the outbreak for the foreseeable future. This was not a simple decision. Of course, saving lives is saving lives, and every DeBola shot you administer achieves this mission. Your entire staff is very excited about the upcoming operation. However, you are focused on the bigger picture as well. NGOs are motivated by their mission - but they are fueled by donors, public recognition and networks. In this sense, sometimes running an NGO feels no different than running any other business: You need to polish your brand, deliver good services and satisfy your customers, or you will not last long in the market. Particularly, as there are other organizations operating in the same field, providing the same services, and looking to the same backers and donors for support and funding.

Shots for Tots has been in the malaria field for the past 5 years, and is identified with fighting this malady. Moreover, its primary reputation is tied to saving children. All of its funding comes from donors focusing on these two issues. Shifting to an Ebola focus, and on general population, means leaving most of your previous backers behind, opening a door to an uncertain financial future.

In order to continue operations, you need to succeed in the Ebola field in a way that can be clearly present to donors focusing on that area. Quite simply, your ability to raise donations is directly linked to the amount of vaccinations you perform. The more vaccinations, the more contributions you will receive, and the better you can ensure Shots for Tots' continued operation, in completing the current Ebola mission. It will also give you the financial breathing space you need in order to shift back into your normal sphere of operations, once the Ebola project is over, as you hope it will be at some point.

However, if you perform only a low number of vaccinations, your funding will gradually dry up and Shots for Tots will simply cease to exist. In that case, not only will you be out of a job, but the NGO will not be around to provide its life-saving expertise to children threatened by future disease outbreaks.

## **DeBola**

### **Individual Information for SaferWorld Executive Director**

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You are the Executive Director of SaferWorld. For the past 10 years, you've led the organization through a number of ups and downs, as it has pursued its mission of combatting malaria around the world. It's funny, how malaria has become a part of your identity; the notion of combatting Ebola, while important, seems like a diversion from your main mission - even though you know that Ebola is a far deadlier disease. While this will take some getting used to, you are glad SaferWorld was called on to combat the disease; turning the tide on Ebola will take all of the medical aid community's resources.

Still, you are very concerned about SaferWorld's future. Your job is to plan months and years into the future, and this transition to combatting Ebola disrupts the carefully laid plans of the past few years. The contacts and donors you've cultivated are largely useless to the organization now, and you need to think about the NGO's viability and economic security in the present and in the future.

You decided that instead of making the month-to-month decisions solely on your own, you'll convene a team from around the organization. This is a very unusual situation, and you have no reason to believe that only you have the wisdom to make the right choice. You recognize the truth, as well as the irony, in this; the responsibility, of course, will always remain yours. A wrong move on your part, and SaferWorld might find itself unable to do the good it was meant to do in the world - not to mention, you will need to find another job. You wonder whether people in the other NGOs find themselves in the same position, or if their organizations enjoy greater financial security.

## **DeBola**

### **Individual Information for SaferWorld Chief Operations Officer**

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You've been with SaferWorld for the past eight years, fighting malaria in Angola, Mozambique and Benunu. You are in charge of making sure everything - everything - goes as planned, with all of the organization's operations. This involves making sure you have the staff you need - from drivers to security to medical - and all the equipment required - from DeBola kits to paperclips.

The shift from malaria to Ebola caught SaferWorld by surprise. You understand the pressing need, of course, but you're concerned about the future. Your entire team is hard at work - creating new informational brochures, and making sure the medical supply stock is reorganized to cope with the upcoming Ebola mission. The transition has caused a spike in your operating costs; you hope you'll be able to cover it over time. Of course, you know that the best way to do that is just to do your mission, as best as you can, and hope the donors come through as they have in the past.

With so much hanging in the balance, you appreciate the Executive Director's decision to create a decision making team for the monthly strategy sessions. That inclusive approach is part of what has always made SaferWorld such a special place to work.

## **DeBola**

### **Individual Information for SaferWorld Intern**

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You are a volunteer, working for SaferWorld. You've wanted to spend time volunteering with an international organization ever since you went off to college, and you came to Benunu to work for SaferWorld the summer after finishing your degree in biology. You had the next phase of your life all planned out - grad school and then work for a pharmaceutical company, and had intended to leave after a couple of months - but then Ebola struck Benunu, and more than anything else you wanted to stay where the action was, and do your best to help.

While your work is mainly administrative, you're involved in everything the organization does here - you work in the office, organize the supply room, produce informational brochures about malaria (and now Ebola) - everything except actually administer vaccines, although you're close to the medical technicians and often spend time with them as they do their work. You've been inspired by how dedicated they are to their work, and how all they want to do is to be given the chance to give someone else a chance for a better life.

You were surprised to be asked to participate in the monthly strategy sessions but the executive director said that in SaferWorld, everybody's input has value. You appreciate that, and are glad that what started off as a summer internship has turned into something much more meaningful.

## **DeBola**

### **Individual Information for the Director of EndMal**

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It has been five years since you and a couple of classmates set up EndMal. Since then, you've all spent more time in Africa than you have at home. The war against malaria is an emotional roller coaster; one day you celebrate rolling back the tide in one place, and the next you are mobilized to combat a new outbreak somewhere else.

You lead EndMal, focusing on raising the money needed to keep the organization going and forming bonds with donors, other NGOs and local government. One of your partners handles operations, and the other handles the medical side. All three of you, however, pitch in wherever and however is needed. With the pace at which this Ebola mission has been thrown together to combat the sudden surge of the disease in Benunu, you wouldn't be surprised to find yourself drinking wine with a well-attired donor in LA one evening - and changing a tire on a dusty road outside of Dandon City the next.

This mission poses you a significant challenge. You are very concerned about EndMal's future. The shift to combatting Ebola disrupts the carefully laid plans of the past few years. The contacts and donors you've cultivated are largely useless to the organization now, and you need to think about the NGO's viability and economic security in the present and in the future. You don't regret accepting the urgent request to help with the Ebola situation, but you also must handle the business situation, and that has become uncertain. You imagine, that some or all of the other NGOs have the same exact thoughts on their minds.

## **DeBola**

### **Individual Information for the Operations Manager of EndMal**

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It has been five years since you and a couple of classmates set up EndMal. Since then, you've all spent more time in Africa than you have at home. The war against malaria has been an emotional roller coaster; one day you celebrate rolling back the tide in one place, and the next you are mobilized to combat a new outbreak somewhere else.

You run the operations end of EndMal - tasked with everything required to keep the organization able to do its mission on the ground: Equipment, staff, logistics, administration and transportation. One of your partners handles the big picture aspects of running the NGO - PR, donor contact and engaging with local government; the other leads the medical side. All three of you, however, pitch in wherever and however is needed.

This new situation is quite a curveball for you. Working in the malaria field, EndMal was a steady ship, from your perspective: There was rarely a shortage of donors on the one hand, and you had the money you needed to get the job done; there was no shortage of vaccines - and heaven knows there was no shortage of clients waiting to get them. Now, suddenly, there is a new kind of math to be done, and you're not sure you like it people's lives are at risk. As if that source of discomfort isn't enough, you know that if EndMal is not successful in administering a good amount of vaccines throughout this mission, your own paycheck could be at risk as well.

## **DeBola**

### **Individual Information for the Health Manager of EndMal**

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It has been five years since you and a couple of classmates set up EndMal. Since then, you've all spent more time in Africa than you have at home. The war against malaria is an emotional roller coaster; one day you celebrate rolling back the tide in one place, and the next you are mobilized to combat a new outbreak somewhere else.

You run the medical end of EndMal - tasked with everything required to actually perform the medical duties the NGO conducts: Training, medical equipment inventory and upkeep, record keeping, and other medical issues. One of your partners handles the big picture aspects of running the NGO - PR, donor contact and engaging with local government; the other runs EndMal's operational side - in charge of everything from personnel to paperclips. All three of you, however, pitch in wherever and however is needed.

From your point of view, this whole system of counting vaccinations is an annoying distraction. You want to focus on getting them into people's bodies sooner, not later, and let the rest take care of itself. However, you see your partner's concern when discussing the donor and financial situation, and you realize that you all face a challenge you haven't faced before, one that could make or break EndMal.

## **DeBola**

### **Individual Information for United Health General Manager**

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It has only been a year since you and your team established United Health, preceded by two years of learning about malaria and planning how to best combat it. After only a year of operations on the ground, everything has changed with the shift to Ebola.

As United Health's founder and general manager, you are quite concerned about the future of your organization. While you were quite successful - certainly for a first-year NGO - in your malaria operations, you know very little about Ebola and are worried about the donor situation. This throws quite a wrench into your well-laid plans for building your organization.

You are very concerned about United Health's future. The shift to combatting Ebola disrupts the carefully laid plans of the past few years. The contacts and donors you've cultivated are largely useless to the organization now, and you need to think about the NGO's viability and economic security in the present and in the future. You don't regret accepting the urgent request to help with the Ebola situation, but you also must handle the business situation, and that has become uncertain. You imagine, that some or all of the other NGOs have the same exact thoughts on their minds - but perhaps it is easier for the older, more established, organizations?

Over the course of the past year, some of your team have become your confidantes and advisors; your chief local coordinator, and the NGO's operations officer. You couldn't imagine taking big decisions - such as the upcoming monthly strategy decision - without them.

## **DeBola**

### **Individual Information for United Health Operations Officer**

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You are in charge of United Health's operations side. Or, as you like to say, everything from transportation to telephones, and from staff to scissors. You love your job - enjoying the challenge of keeping an organization moving and doing its mission, while the general manager has to wear a suit, meet donors and smile at government officials. You don't envy your general manager, but you are glad that he is sharing these tough decisions on how to distribute vaccines with the people who have been by his side throughout the United Health's entire first year of operations.

This is not the first health-related NGO you've worked for, but there's something special about it. In its first year of operations, it brought itself up to speed at a very impressive pace, and conducted a malaria vaccination program just as professionally as the larger, older NGOs.

While you understand that the Ebola situation poses a real challenge to United Health's current overall plan, and sets it on a shaky financial path - it might also be a great opportunity. Perhaps the young NGO - not as set in its ways, embedded in structures and tied down to financial and operational habits as the more established NGOs are - could emerge as the breakout player in the Ebola situation. You can envision this happening in two ways - either through leading the pack in terms of the number of vaccines you administer, or through leading the pack towards working together. You're not sure which you prefer, and are glad there is more than one person deliberating this decision.

## **DeBola**

### **Individual Information for United Health Country Coordinator**

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Born and raised in a small village about an hour's drive from Dandon City, you moved to the city as a teenager and have stayed ever since. You were working three jobs, as well as trying to complete a university degree, when United Health chose Benunu as its first operation zone. As you hope to become a doctor one day, you have always wanted to work with one of the medical NGOs operating in Benunu and in neighboring countries. You reached out, offering your services as a translator, guide, gofer and fixer, and United Health hired you for few minor jobs every so often. After a few months, the general manager sat you down, told you how valuable your work was, and offered you to come on board, full time, as the country coordinator - doing everything you had been doing, and more. Not only was the salary you were offered far beyond your expectations - the NGO would also pay your tuition, and support your part-time studies.

Over the past half a year, United Health has become your livelihood and, really, your life. You feel absolutely at home working with all UH personnel, in the office or in the field, and enjoy the interactions with people from different backgrounds and cultures. Your salary allows you to support your parents and sisters, and the recognition you receive from the NGOs leadership team is as rewarding as the money.

You sense the general manager's concern, with regards to United Health's future. Given your own stake in its success, you hope you can contribute to reaching the best decisions possible, in the monthly planning sessions.

## DeBola

### Individual Information for the Manager, Shots for Tots

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After 20 years in the medical NGO field, you felt you had seen and done it all. Leading Shots for Tots for the past couple of years, however, has absolutely rejuvenated you, rekindling your enthusiasm and providing you with constant reminders of the benefits of your success - and the price of your failures. Every time you see a syringe being depressed in a child's arm, you breathe a tiny sigh of relief - one more saved, one million to go.

While you've dealt with many disease outbreaks around the world - malaria, dengue fever, yellow fever, and even a previous outbreak of Ebola in Uganda - saving children's lives, in particular, has quickly become an important part of your identity. Working with the general population, combatting Ebola, seems like a diversion from your main mission - saving children's lives. While this will take some getting used to, you are glad Shots for Tots was called on to combat the disease; fighting Ebola will take all of the medical aid community's resources.

Still, you are very concerned about Shots for Tots' future. Your job is to plan years into the future, and this transition to combatting Ebola disrupts your carefully laid plans. The organization has been working on malaria for years, and most of its donors only give to that cause; most of the rest only give to child-focused causes. The contacts and donors you've cultivated are largely useless to the organization now, and you need to think about the NGO's viability and economic security in the present and in the future. You wonder whether people in the other NGOs find themselves in the same position, or if their organizations enjoy greater financial security.

You've decided to convene a team to discuss the month-to-month strategic decisions. This is a very unusual situation, and you have no reason to believe that only you possess the wisdom to make the right choice. You know that wrong moves here will have high costs - for you, for everyone involved in Shots with Tots, and for the children whose lives you hope to return to saving. Your first choice was your mission coordinator - who is responsible for everything the NGO accomplishes, in a way. For a different perspective, you've also invited the organization's summer intern, who has recently decided to stay on for the Ebola operation. You are impressed by this dedication - and also wonder whether the business grad can provide perspectives you had not considered on your own.

## **DeBola**

### **Individual Information for the Operations Coordinator, Shots for Tots**

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You are in charge of Shots for Tots' operations side. Procuring, organizing, hiring, and maintaining everything and everyone needed to allow the organization to keep getting shots into people's arms. You organize transportation, medical supplies, staff, office management - you name it. You love your job - enjoying the challenge of keeping an organization moving and doing its mission, while the manager has to wear a suit, meet donors and smile at government officials.

You don't envy your manager, and you are glad for the decision to share making these tough decisions on how to distribute vaccines each month. The volunteer is new to the organization, but might give some outside perspective and have understanding of running a business. You yourself know all the details of Shots for Tots' operations, and you always keep your eye on the mission - saving lives.

From your point of view, this whole system of counting vaccinations is an annoying distraction. You want to focus on getting them into people's bodies sooner, not later, and let the rest take care of itself. However, you see your manager's concern when discussing the donor and financial situation, and you realize that you all face a challenge you haven't faced before, one that could make or break Shots for Tots.

## **DeBola**

### **Individual Information for the Volunteer, Shots for Tots**

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You are a volunteer, working for Shots for Tots. You've wanted to spend time volunteering with an international organization ever since you went off to college, and you came to Benunu to work for Shots for Tots this summer, after finishing your degree in business. You have the next phase of your life all planned out - an MBA, and then work for a pharmaceutical or medical services company. Then Ebola struck Benunu, and more than anything else you wanted to stay where the action was, and do your best to help. You've deferred your MBA program for a year, and are ready for action. You wish your parents would be as excited by this decision as you are, but you can't have everything.

Your work is mainly administrative, but you're involved in everything the organization does here - you work in the office, organize the supply room, produce informational brochures about malaria (and now Ebola) - everything except actually administer vaccines, although you're close to the medical technicians and often spend time with them as they do their work. You've learned to talk their talk, which you feel will give you added value later on, working in the medical industry. You've been inspired by how dedicated they are to their work - even as you understand why burnout is a common problem in their field.

You were surprised to be asked to participate in the monthly strategy sessions. Perhaps the manager appreciates your business acumen, which you've largely kept in a drawer over the past few months. At any rate, you are glad that what started off as a summer internship has turned into something much more meaningful. You hope you can provide helpful input, as the organization makes decisions that are both crucial to fulfilling its mission, as well as to its very survival.

## **Reading material and external sources**

The simulation, as written, can be assigned as-is, with no further reading or preparation required on the students' part. This is not to say that reading external material interferes with the simulation in any way; on the contrary: teachers can choose any background material they consider beneficial to students in their field, and assign it. Similarly, they can assign students to conduct their own research, pointing them at particular topics or resources. These resources can originate from a range of disciplines, including the health sciences, public management and administration, conflict resolution, non-profit management, etc. Through assigning this material, teachers can 'bridge' between the simulation and their course objectives.

While providing a comprehensive list of how all disciplines might be tied into this simulation is beyond the scope of this teaching note, two areas, directly related to the simulation itself, merit some recommendations: Background on the Ebola threat, and background on the Prisoners Dilemma.

### **Prisoners Dilemma:**

Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books

Davis, M. (1983). *Game theory: A nontechnical introduction*. New York: Basic Books

Poundstone, W. (1992). *Prisoner's dilemma: John Von Neuman, game theory and the puzzle of the bomb*. NY: Doubleday

### **Ebola Outbreak:**

The best resource for learning about the recent West African Ebola outbreak of 2013-2016 is the World Health Organization's website at <http://www.who.int/csr/disease/ebola/en/>

For a detailed timeline and description of the virus' outbreak and spread, see <http://www.who.int/csr/disease/ebola/ebola-6-months/guinea/en/>

For the most recent work on vaccine development see <http://www.who.int/mediacentre/news/releases/2016/ebola-vaccine-results/en/>

Another resource for information about Ebola, as well as coverage of ongoing events, is <http://www.ebolavirusnet.com/> .

For reports of a new outbreak of the disease in the Democratic Republic of the Congo (May 2017) see [https://www.nytimes.com/2017/05/18/world/africa/ebola-outbreak-congo-virus.html?\\_r=0](https://www.nytimes.com/2017/05/18/world/africa/ebola-outbreak-congo-virus.html?_r=0) and <http://www.who.int/csr/don/13-may-2017-ebola-drc/en/>

For the effects that new outbreaks have on the development of new vaccines, see <http://www.sciencemag.org/news/2017/05/ebola-outbreak-grows-question-using-vaccine-becomes-more-urgent>