

# **The Case Management Modeling and Notation (CMMN) specification**

This is a tutorial and survey designed to explore complexity metrics for the Case Management Modeling and Notation (CMMN) specification. CMMN is an OMG specification compatible with the Business Process Modeling and Notation (BPMN), but targeting case management use cases.

You don't need to be familiar with CMMN to participate on this survey; the included optional 30 minutes tutorial will provide you with the bases of CMMN need to complete the survey.

You should plan to spend 45 minutes to an hour completing the tutorial and survey. But, you can do it in multiple sessions (in which case you will need to provide a pseudonym and a password to recover your session when you return). The survey should take around 15 minutes, after the approximately 30 minutes CMMN tutorial.

The data from this research will be used to fine tune and validate complexity metrics for CMMN. Participation is voluntary, responses will be kept confidential, and no identifiable personal information will be collected.

As an appreciation for your collaboration, we will donate \$6 (six dollars) to a charity of your choice and if you want, we will provide you with early results of the survey and notify you when the final results are published. This will be done using a protocol that maintains confidentiality and don't collect any personal information.

Next page has a short description of the project and an informed consent question.

# Informed Consent

## Introduction

You are invited to participate in a research project about complexity metrics for the Case Management Modeling and Notation (CMMN) specification. This online tutorial and survey should take about 45 to 60 minutes to complete. Participation is voluntary, and responses will be kept confidential.

With very few exceptions, you have the option to avoid responding any questions that you choose. Submission of the survey will be interpreted as your informed consent to participate and that you affirm that you are at least 18 years of age.

## Purpose of the Research

This research study is designed to explore complexity metrics for the Case Management Modeling and Notation (CMMN) specification. The data from this research will be used to fine tune and validate complexity metrics for CMMN. This research is part of a PhD work on exploring complexity metrics for artifact-based process models.

## Procedure

If you volunteer to participate in this study, you will be asked to

1. Complete a nine questions form on demographics and a prior experience.
2. Complete a 30 minutes CMMN tutorial (optional if you are familiar with CMMN).
3. Evaluate two CMMN diagrams. Each evaluation consists of a CMMN model with a six questions form.
4. One question comparing the two CMMN diagrams.
5. Complete one page perceived notation complexity form.
6. One final page with information on the charity donation, how to get further information on this research, and an optional feedback question.

Your participation will take approximately 45 minutes, of which approximately 30 minutes will be the CMMN tutorial.

## Participation and Withdrawal

Your participation in this research study is voluntary. You may refuse to participate or stop participation at anytime without penalty. To stop simply stop answering the questions in the survey.

You also have the possibility of completing the tutorial and survey in multiple sessions, so you don't need to do the full 45 minutes in a single session. At any time during the tutorial and survey you can select "Resume later" from the bottom of the page, in which case you will be asked for a name (pseudonym) and a password that will be used to recover your answers when you return for a following session.

## Appreciation

As an appreciation for your collaboration, we will donate \$6 (six dollars) to a charity of your choice (to a maximum of \$1002). The donations will be combined and each charity will receive a single payment. We are reserving \$1002 (thousand two dollars) for donations. We will stop the charity donations when the \$1002 is used. We will collect information on the charity of your choice in the last page of the survey.

As further appreciation for your collaboration, we can provide you with details of the charity payments, early results of the survey, and notify you when the results are published. This will be done using a

protocol that maintains confidentiality and don't collect personal information. Further information will be provided in the last page of the survey.

## **Potential Risks or Discomforts**

There are no foreseeable risks associated with the study. The only foreseeable discomforts, inconveniences, and costs are associated with the time you will spend completing the tutorial and survey.

## **Potential Benefits of the Research**

You may benefit from the CMMN tutorial; and you may gain some experience and appreciation for CMMN models by evaluating the two models in this exercise. The potential benefits to science and society are associated with a better understanding of business process model notations.

## **Confidentiality and Data Storage**

This survey will not collect identifiable personal information and the resulting data set will not contain any identifiable personal information. The raw data in the form of a spreadsheet will be available as part of the PhD thesis.

## **Questions about the Research**

If you have any questions about the research, please contact the Principal Investigator, Mike Marin, via email at [mmarin\(at\)acm.org](mailto:mmarin@acm.org) or the faculty advisors Professor Hugo Lotriet at [lotrihh\(at\)unisa.ac.za](mailto:lotrihh@unisa.ac.za), and Professor John A. Van Der Poll at [vdpolja\(at\)unisa.ac.za](mailto:vdpolja@unisa.ac.za). If you have any questions regarding your rights as a research subject, please contact the UNISA Ethics Review Committee.

This research project has been reviewed and approved by the University of South Africa's Ethics Review Committee for the Protection of Human Subjects.

## **Consent**

I have read the information provided above. I understand that by completing this survey, I am agreeing to participate in this research study.

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

## Demographics and prior experience

### Gender

Please choose **only one** of the following:

- ☐ Female
- ☐ Male

### Age

Please write your answer here:

•

### Highest degree completed

Please choose **only one** of the following:

- ☐ High School
- ☐ One or more years of University
- ☐ Bachelor degree
- ☐ Master degree
- ☐ PhD

### Current role

Please choose **all** that apply:

- ☐ Market analyst
- ☐ Advise clients on technology
- ☐ Manager
- ☐ Practitioner
- ☐ Educator (trains clients on modeling technologies)
- ☐ End user of process technology
- ☐ Consultant on process technology
- ☐ University lecturer
- ☐ University student
- ☐ Other:

### What statements better reflects your current opinion?

Please choose **all** that apply:

- ☐ Adaptive case management cannot be modeled in advance
- ☐ Some initial modeling is required for adaptive case management
- ☐ BPMN is enough to model adaptive case management
- ☐ BPMN is not enough for adaptive case management
- ☐ BPMN and CMMN should be merged into a single standard
- ☐ BPMN and CMMN should be maintained as separate standards
- ☐ CMMN is irrelevant
- ☐ BPMN is irrelevant
- ☐ Both CMMN and BPMN are irrelevant for adaptive case management

- ☐ Other:

Case management is sometimes called Adaptive case management.

**Work experience in the IT-sector (in years)**

Please write your answer here:

•

**Work experience with process (or workflow) models (in years)**

Please write your answer here:

•

**Formal training on process (or workflow) modeling (in weeks)**

Please write your answer here:

•

**Process model notation used**

Please choose **all** that apply:

- ☐ None
- ☐ BPMN
- ☐ EPC
- ☐ UML Activity Diagrams
- ☐ Other UML Diagrams
- ☐ CMMN
- ☐ Other:

## Tutorial

Short CMMN version 1.0 tutorial

This tutorial has 23 small pages that you can navigate using "Next" and "Previous", and you can jump to the different topics using the left menu. Doing the complete tutorial should take around 30 minutes.

Insert Tutorial Here

## Completed tutorial?

Please, complete the tutorial before continuing. The tutorial consists of 23 small pages that you can navigate using "Next" and "Previous". alternatively, you can jump to the different topics using the left menu. Doing the complete tutorial should take around 30 minutes. \*

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

## Do you have experience with CMMN? \*

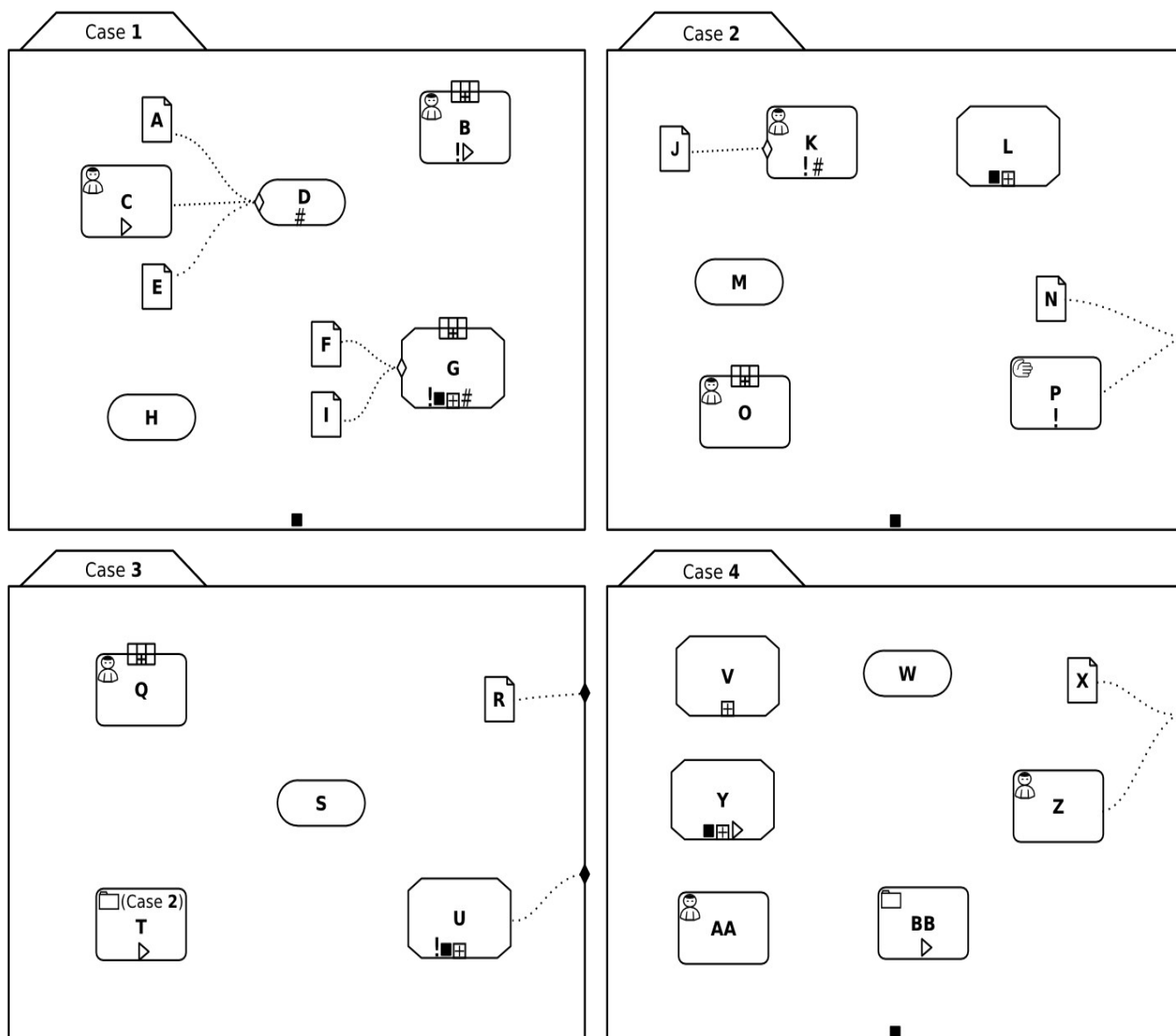
Only answer this question if the following conditions are met: ([Tutorial](#) == "N")

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

If you have enough experience with CMMN then you can skip the tutorial.

## Model X1a



**How many milestones are in this model?**

Please write your answer here:

.

**Is there any situation in which O start executing before L?**

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

**Can case 1 complete if C does not execute?**

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

Assume there is no manual intervention by case workers.

**Is there any situation in which G completes executing before B?**

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

**Which tasks start executing automatically when case 3 start executing?  
select all that apply.**

Please choose **all** that apply:

- ☐ V
- ☐ Y
- ☐ Z
- ☐ AA
- ☐ BB
- ☐ None

**How easy to understand is this model?**

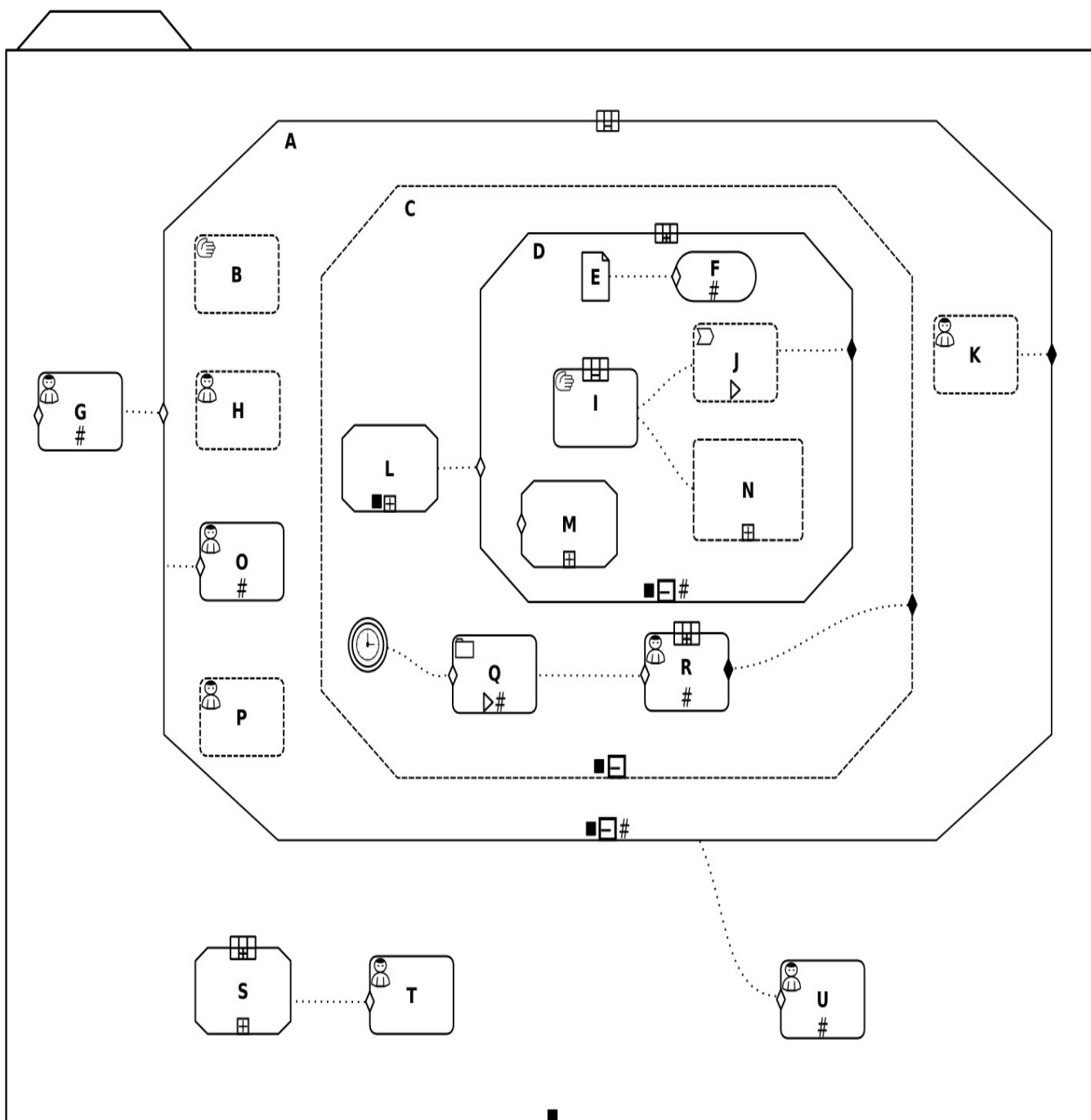
Please choose the appropriate response for each item:

Very difficult to understand	Difficult to understand	Rather difficult to understand	Neither difficult nor easy to understand	Rather easy to understand	Easy to understand	Very easy to understand
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Assuming that labels were written in plain English (instead of A, B, C, ..., AA, BB), how easy to understand is the model.



### Model W2b



### How many non-discretionary stages are in this model?

Please write your answer here:

- 

**Is there any situation in which M starts executing before H?**

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

### Can case 1 complete if T does not executes?

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

Assume there is no manual intervention by case workers.

### Is there any situation in which D completes execution before M?

Please choose **only one** of the following:

- ☐ Yes
- ☐ No

### Which tasks start executing when case 1 start executing?

Please choose **all** that apply:

- ☐ A
- ☐ G
- ☐ S
- ☐ T
- ☐ U
- ☐ None

### How easy to understand is this model?

Please choose the appropriate response for each item:

Very difficult to understand	Difficult to understand	Rather difficult to understand	Neither difficult nor easy to understand	Rather easy to understand	Easy to understand	Very easy to understand
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Assuming that labels were written in plain English (instead of A, B, C, ..., U), how easy to understand is the model.

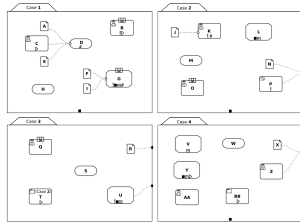
## Model X1a versus Model W2b

### Compare the two models

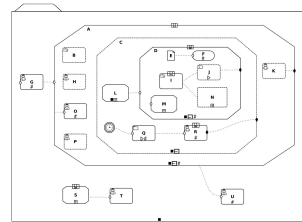
Please compare the complexity of the two models. \*

Please choose the appropriate response for each item:

#### A is model X1a



#### B is model W2b



**A is  
strongl  
y more  
comple  
x than  
B**

**A is  
more  
comple  
x than  
B**

**A is  
slightly  
more  
comple  
x than  
B**

**A and  
B are  
equally  
comple  
x**

**B is  
slightly  
more  
comple  
x than  
A**

**B is  
more  
comple  
x than  
A**

**B is  
strongl  
y more  
comple  
x than  
A**

**A is absolutely more  
complex than B**

**B is absolutely more  
complex than A**



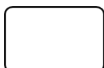
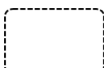
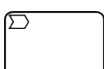
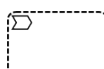





## Notation complexity

Exploring the perceived complexity of the CMMN elements

**Which symbols make a CMMN model easy to understand and which symbols make the model difficult to understand. For each CMMN symbol, please rate its complexity from 1 (easy to understand) to 8 (very difficult to understand).**

Please choose the appropriate response for each item:

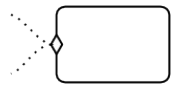
	(Very easy)	2	3	4	5	6	7	(Very difficult)
	1							8
<b>Discretionary stage</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Case file item</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Task</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Discretionary task</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Process task</b>	<input type="radio"/>							
 		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>User event listener</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Milestone</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Participant icon</b>	<input type="radio"/>							
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(Very easy)	2	3	4	5	6	7	(Very difficult)
1							8

**Manual activation decorator**



**AND entry criteria**



**OR entry criteria**



<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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## Final page – Thanks for taking the survey.

As an appreciation for your collaboration, in this page you can select a charity of your choice, and if you want to receive early results of the survey and notification when the final results are published you can provide an email address.

We are also interested in your feedback and suggestions. The last question in this page provides space for your feedback.

## As a token of appreciation, we will donate \$6 (six dollars) to a charity of your choice.

You have the option of providing us with a URL of the charity of your choice (select other and place the URL in the text box), or simply select one from the list. We are listing here the top charities from two charity evaluators ([GiveWell](#), and [Giving what we can](#)). The description of the charities below were taken from the evaluators web site.

Please choose **only one** of the following:

- ☐ [Against Malaria Foundation \(AMF\)](#)

The Against Malaria Foundation fights malaria by distributing Insecticide-Treated mosquito nets. Malaria killed 367-755 thousand people in 2013, most of them children, and there are about 200 million cases every year. Insecticide-Treated Bednets are one of the most effective ways to prevent transmission of malaria and have averted about 450 million cases since 2000. The Against Malaria Foundation can distribute bednets for between \$5-7.50

- ☐ [Schistosomiasis Control Initiative \(SCI\)](#)

Schistosomiasis Control Initiative treats neglected tropical diseases like schistosomiasis by assisting with deworming in schools. Schistosomiasis is a disease caused by parasitic worms. The WHO estimates that at least 261 million people required preventive treatment for schistosomiasis in 2013, but only 40 million were treated. The disease is widespread, but extremely cheap and easy to treat. SCI can distribute deworming tablets for around \$2 / person / year. SCI also treat other neglected tropical diseases like hookworm, roundworm, and whipworm.

- ☐ [Deworm the World Initiative, led by Evidence Action](#)

Deworm the World Initiative treats neglected tropical diseases by working with governments in affected areas. Intestinal worms like hookworm, roundworm, and whipworm are Neglected Tropical Diseases, which don't currently get the attention they deserve. 875 million children require annual treatment. The treatment is cheap and easy. By providing technical assistance to governments, Deworm The World can help deworm children for around 50 cents / person / year.

- ☐ [GiveDirectly](#)

GiveDirectly sends money to very poor people in rural Kenya using mobile phones. GiveDirectly makes unconditional cash transfers to extremely poor people using mobile phone payment systems. The money is collected from local agents, and can be spent on anything the recipient wishes. GiveDirectly says that their average recipient earns about 65 cents (nominal) per day.

- ☐ Other

The donations will be combined and each charity will receive a single payment. We are reserving \$1002

(thousand two dollars) for donations. We will stop the charity donations when the \$1002 is used.

**As a token the appreciation for your collaboration,** we will provide you with information on the charity distribution, a copy of early results of this survey, and notification when final results are published. To participate, you will need to email us indicating the willingness to participate. We will collect the email address and will use it to send you three emails:

- One email notifying you that we got your request to participate.
- when the survey is closed, we will send you an email describing the charity distribution.
- Few weeks later, we will send an email with preliminary results from the survey,
- Finally few months later, we will send a notification when final results are published.

The emails in the email list will be maintained confidential, and will not be given to any third party. After the last email is sent, we will destroy the email list.

We suggest that you don't use your personal or business email address, but instead use a forwarding email address to conceal your identity (for example <http://www.33mail.com>), or create another email address. That way, we don't get any identifiable information about you.

Send us an email [CMMNSurvey\(at\)mmm.33mail.com](mailto:CMMNSurvey(at)mmm.33mail.com) from the email address you want us to use.

### **Any final comments that you may want to share?**

Please write your answer here:

Submit your survey.

Thank you for completing this survey.