

## **A conversation with the Centre for Pesticide Suicide Prevention, February 28, 2018**

### **Participants**

- Professor Michael Eddleston – Director, Centre for Pesticide Suicide Prevention
- Dr. Leah Utyasheva – Policy Director, Centre for Pesticide Suicide Prevention
- James Snowden – Research Consultant, GiveWell

**Note:** These notes were compiled by GiveWell and give an overview of the major points made by the Centre for Pesticide Suicide Prevention.

### **Summary**

GiveWell spoke with Professor Eddleston and Dr. Utyasheva of the Centre for Pesticide Suicide Prevention (CPSP) for an update on its work. In August of 2017, CPSP received a GiveWell Incubation Grant of \$1,336,409 to start work aimed at reducing deaths from deliberate ingestion of pesticides. Conversation topics included progress on CPSP's core projects in Nepal and India, the organizations working with CPSP, the hiring and training of researchers, and progress on CPSP's various side projects.

### **Progress on core projects**

CPSP plans to collect data in India and Nepal on which pesticides are most commonly used in suicide attempts and are most likely to result in death. The data will be collected primarily by reviewing historical medical records, as CPSP does not have the resources nor does it believe it is necessary to conduct patient interviews. CPSP will also be encouraging local medical professionals to more thoroughly record data on pesticide suicides.

In August of 2017, CPSP set a six-month target for commencing data collection in Nepal and India. It is approximately one month behind schedule in Nepal, due to the process of finding a partner organization, and three months behind schedule in India, due to a new government approval process for research proposals receiving overseas funding.

### **Progress in Nepal**

#### *Receiving ethics approval*

CPSP has received ethics approval from the Nepal Health Research Council, the national body that authorizes medical research. Data collection can now start in seven hospitals in Nepal. It will likely commence data collection in one to two of these hospitals before gradually expanding to all seven hospitals.

CPSP is currently waiting to receive ethics approval from three other hospitals in Nepal. Data collection may be delayed if these three hospitals decide to review CPSP's request through internal ethics committees.

#### *Building relationships to improve policy*

Due to the small size of Nepal, a limited number of individuals are involved in national pesticide regulation. CPSP is collaborating with the current Director General of Nepal's Ministry of Agricultural Development and the former Pesticide Registrar of Nepal's Pesticide Registration & Management Division. CPSP would like to build stronger relationships with these two individuals to ensure that the pesticide suicide data it collects is trusted and utilized effectively.

Additionally, Dr. Utyasheva has been studying Nepal's pesticide registration and regulation systems to better understand how they may be improved. CPSP plans on engaging a broad range of stakeholders, which may include civil society actors, to confirm that its understanding of pesticides in Nepal is accurate.

On March 16, CPSP will run a workshop for medical professionals in Nepal to present its project and encourage stakeholders to be invested in its work.

### **Progress in India**

#### *Receiving ethics approval*

CPSP has received ethics approval from the hospital network it is working with in North India (Emmanuel Hospital Association), including its 8 hospitals participating in the project. CPSP is waiting to receive approval from its hospital network in South India (based around the Christian Medical College (CMC) Vellore) including its participating hospitals, although some of these hospitals may wish to review CPSP's request through internal ethics committees.

#### *New approval process for studies supported by overseas funding*

In December of 2017, India established new rules requiring all studies supported by overseas funding to undergo a review by the Indian central government. CPSP learned of this procedural change in January of 2018 and is now preparing to submit its research proposal for review. It believes that it will take approximately three months for the central government to review its request and make a decision, although this is an estimate and not a guarantee.

Until CPSP receives approval from the Indian central government, it cannot proceed with data collection. However, CPSP is currently establishing the appropriate infrastructure for its study—including hiring employees, training researchers, and filling out paperwork—so that it may commence data collection immediately upon receiving approval.

#### *Hiring a project coordinator for work in North India*

CPSP will soon be employing a project coordinator in North India, who will network with stakeholders, manage logistics, collect information on pesticide regulation, and

potentially help coordinate research in South India. The project coordinator will be trained by CPSP's Sri Lankan staff member, who has experience with such studies.

#### *Understanding India's pesticide regulation framework*

CPSP generally understands India's national-level regulatory system for pesticides. However, India is a large country with numerous states. In North India alone, CPSP will be working with six different states. In order to effectively improve registration of suicides and management of hazardous pesticides across India, CPSP believes it is important to gain an understanding of the differences in pesticide regulation between national and state governments. It is particularly interested in learning how pesticide bans established by India's national government are implemented and enforced by state governments.

Some of the specific actions CPSP will take to build a more complete understanding of pesticide regulation in India include engaging with policymakers, having its project coordinator determine the regulatory differences between six North Indian states, and systematically analyzing the different pesticides available in stores across India.

### **Organizations working with CPSP in Nepal and India**

CPSP's main partners are Christian Medical College (CMC) in South India, Emmanuel Hospital Association (EHA) in North India, and Nepal Public Health Foundation (NPHF) in Nepal. These three organizations will hire local employees and manage financing for CPSP's research. CPSP will then review the organizations' expenses and have UE reimburse them. Contracts with each organization have been written and reviewed, although UE is still in the process of signing the contracts, which CPSP hopes will be completed within two weeks.

Partnerships in India were relatively simple to form due to a preexisting relationship between UE and CMC, who then connected UE with EHA. Finding a partner organization in Nepal took longer, but CPSP is pleased to be partnering with NPHF, which has a good reputation and long-standing interest in public health.

#### *Partner roles*

In addition to managing finances, in India CMC and EHA will also serve as project collaborators, providing research input and contributing primary authors for the paper that will summarize CPSP's findings in India.

In Nepal, CPSP has partnered with a medical research institution and Nepal's Department of Agriculture, both of which will contribute primary authors for CPSP's research paper. Currently, it remains unclear to what extent NPHF would be involved in CPSP's work in Nepal, beyond its role as a contractor.

*Update (April 5, 2018): Subsequent discussions in Nepal indicate that NPHF will collaborate with CPSP as a partner with authorship on papers reporting results.*

## **Hiring and training researchers in Nepal and India**

Once contracts with CPSP's various partner organizations have been signed, it can begin hiring the researchers who will be collecting data at hospitals. Training for researchers will be facilitated predominantly by partner organizations, particularly in India, although CPSP will likely also be involved through its Sri Lankan staff (Mr. Manjula Weerasinghe). Material covered in training sessions will include:

- **Record identification** – Researchers will be trained on how to interpret medical records, as these records are not always clear.
- **Pesticide surveying** – CPSP plans on having a Sri Lankan colleague help train researchers in how to effectively survey and catalogue the pesticides a store carries. This colleague has spent a significant amount of time inside stores taking photographs of pesticides and studying the features of pesticide bottles.
- **Social skills** – Researchers will learn how to engage medical practitioners in order to encourage more thorough recordkeeping.

## **Progress on side projects**

CPSP estimates that approximately 80-90% of its resources are being spent on its core work in Nepal and India, with the remaining 10% allocated to side projects in various other countries. This distribution of resources may change as CPSP's side projects evolve.

## **Research on the effects of a ban on paraquat in Taiwan**

Taiwan's government is in the process of enacting a ban on paraquat, a harmful pesticide that contributes to suicide deaths. CPSP will provide a \$20,000 grant to Dr. Shu-Sen Chang, the Assistant Professor of Health Behaviors and Community Sciences at National Taiwan University (NTU), for a study on the effects of the paraquat ban. CPSP is also interested in monitoring the political process involved in a national pesticide ban. It has already witnessed significant opposition to the ban in Taiwan.

Dr. Chang hopes to leverage funding from CPSP to receive a larger grant from the Taiwanese government, which would enable him to significantly expand the scale of the project. Funding from CPSP will enable Dr. Chang to employ one to two researchers for six months, while he awaits a response to his government grant application. Data collection for the study is projected to commence in April of 2018, although UE and NTU are still negotiating a contract.

*Update (April 5, 2018): This contract has been confirmed.*

## **Large-scale review of data on pesticide suicide in China**

*Official data from the Chinese government on pesticide suicides*

A paper published in *The Lancet* in 2002 found that approximately 60% of suicides in China from 1995 to 1999 were due to ingestion of pesticides. New analyses based

on government data suggests an approximately 60% decline in the rate of suicide in China from 1995 to 2012, with a portion of the decline attributable to a reduced number of pesticide suicides.

To produce national data on rates and causes of mortality, the Chinese government records causes of death for a random sample (approximately 1%) of the national population. Since the sample is considered representative of China's population, the mortality outcomes in the sample are then extrapolated to China at large.

#### *CPSP's review of literature on pesticide suicides*

CPSP is working with 10 medical students in Hong Kong to review 2,500 papers that report data on pesticide self-poisoning in China over the past 30 years. Preliminary analysis suggests that although there has been a slight reduction in case fatality from ingestion of organophosphorus pesticides over the past 30 years, the number of pesticide suicide cases has actually increased in the past 10 years—potentially due to the spread of paraquat for agricultural use in China. These findings are contrary to published data, which indicate a decline in the number of pesticide suicides.

A ban on paraquat, which is responsible for a large number of suicides in China, took effect around 2014-15 and will be completely phased out of use over time. CPSP expects that this ban will significantly reduce cases of pesticide suicide in China in the future.

#### *CPSP's plans for the future*

In the next three months, CPSP and its colleagues will be authoring a paper summarizing the final analysis of data gathered from its literature review. It hopes to engage the Chinese government to ensure that its findings are used and trusted. Therefore, CPSP will include the key government official responsible for pesticide regulation in China as an author of the paper. CPSP would also like the paper to include material on how pesticides are regulated in China. However, it may alternatively decide to have a recently hired postdoctoral researcher work with the Chinese pesticide regulator on a separate paper concerning pesticide regulation in China.

#### **Research to determine pesticide suicide prevalence in Africa**

CPSP is working with Professor Andrea Rother, the Head of the Environmental Health Division at the University of Cape Town, to expand knowledge of pesticide suicides in Africa.

Professor Rother teaches a master's course for pesticide regulators from low-income countries, largely in Africa. CPSP will be providing 50% of the funding for a pesticide regulator from India to take her course. It has also sent Professor Rother a proposal for a research study to determine the prevalence of pesticide suicides in Africa, which she will send to her students in case one of them would like to work on

the study. CPSP may also employ a former colleague from Sri Lanka to work on this project.

#### *Deprioritizing work in Tanzania*

CPSP had previously considered working with an official from the Tanzanian board for pesticide regulation to document pesticide regulation processes in Tanzania. CPSP is still interested in working with the Tanzanian official, although it has deprioritized this project.

Work in Tanzania may ultimately become part of CPSP's broader efforts in Africa, potentially serving as a case study for how pesticide regulation functions in the continent.

#### **Paper on the relationship between pesticide suicides and human rights**

Dr. Utyasheva has written a paper presenting a case for the connection between pesticide suicide and human rights issues, which will be the first of its kind. CPSP would like the United Nations (UN) Special Rapporteur on the Right to Food and other UN Rapporteurs to coauthor the paper, which they had previously considered doing.

CPSP plans on publishing the paper relatively soon in an international, peer-reviewed human rights journal.

#### **Inclusion of pesticide suicide in the Rotterdam Convention**

The Rotterdam Convention is an international treaty that maintains a list of hazardous chemicals and promotes cooperation between nations to limit the negative impacts of these substances. When deciding to make an addition to its list, the Rotterdam Convention only considers the harmful effects of a substance during regular use and not for what it terms "intentional misuse," which includes suicide.

CPSP would like to work with the Food and Agriculture Organization of the United Nations (FAO), a partner organization of the Rotterdam Convention, on including pesticide suicide as a legitimate concern. Making this change will be difficult and not a core priority for CPSP, although it believes that changing the Rotterdam Convention has the potential to significantly advance the conversation around pesticide suicide.

#### **Randomized controlled trial in Sri Lanka**

CPSP would like to conduct a randomized controlled trial (RCT) on the effects of banning carbosulfan and profenofos, two highly lethal pesticides, in Sri Lanka. It believes that recording and publishing the bans' effects on agricultural yields would be particularly meaningful.

The Sri Lankan pesticide registrar, who has previously worked with CPSP on a study of a district-level pesticide ban in Sri Lanka, is very interested in CPSP's proposal for an RCT. To conduct the RCT, CPSP needs approval from the pesticide registrar's technical advisory committee, which will likely review the proposal in April.

### *Study design*

The study will be a three-to-five-year cluster RCT in which carbosulfan and profenofos are banned in 50% of all Sri Lankan districts, with the remaining districts serving as a control group. The primary outcome measure will be overall suicide, not pesticide self-poisoning.

### *Estimating agricultural effects*

One market in Dambulla processes 60-70% of all vegetables in Sri Lanka that use carbosulfan and profenofos. CPSP may be able to receive access to market ledgers from a number of merchants through an anthropologist colleague that researched in the market for three years. The ledgers would represent an extremely large dataset composed of millions of transactions and would enable CPSP to determine small changes in agricultural yields as a result of the bans on carbosulfan and profenofos. It may be difficult to obtain the ledgers, although CPSP believes that it is possible if it can assure the market that the data will be anonymous and not used for any commercial purpose.

### *Funding for the study*

Sri Lanka is hoping to enact bans on carbosulfan and profenofos within the next six months. GiveWell is currently the only potential funder of the RCT due to the speed at which it can provide funding.

All GiveWell conversations are available at <http://www.givewell.org/conversations>