



# SHOW ME THE EVIDENCE

## CIHR-SUPPORTED RESEARCH WORKING TO CREATE A HIGH-QUALITY, ACCESSIBLE AND SUSTAINABLE HEALTH CARE SYSTEM

For more than a decade, the Canadian Institutes of Health Research (CIHR) has supported some of the best and brightest health researchers in the world in their quest to improve the health and well-being of Canadians through research. CIHR-funded research and researchers have delivered better care, earlier diagnosis, improved quality of life and cost savings.



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# WELCOME TO THE THIRD ISSUE OF *SHOW ME THE EVIDENCE*

What makes a strong, sustainable health care system? Attention to patients and their families; a focus on proven, cost-effective treatments; concern for the well-being of health care workers; and a willingness to collect and use research evidence to improve service delivery.

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's health research investment agency. CIHR provides support for investigator-driven health research, but also sets strategic investment priorities to respond to key health and health system challenges. CIHR has established five research priorities for the organization and health research across the country:

- Enhance patient-oriented care and improve clinical results through scientific and technological innovations.
- Support a high-quality, accessible and sustainable health care system.
- Reduce health inequities of Aboriginal people and other vulnerable populations.
- Prepare for and respond to existing and emerging global threats to health.
- Promote health and reduce the burden of chronic disease and mental illness.

*Show me the Evidence* showcases some of the evidence being produced by Canadian health researchers in response to the challenges listed above. In this issue, we report the progress of several researchers who are helping support a high-quality, accessible and sustainable health care system. In Canada and around the world, their research is making a difference. These stories highlight:

- a new tool to protect health care workers in developing countries from workplace exposure to infectious diseases and other health threats;
- an innovative program that has drastically altered the service delivery model used to diagnose and treat dementia patients in rural communities; and
- a new approach for systematically improving the level of care provided to newborns admitted to neonatal intensive care units.

These CIHR-funded research projects have delivered:

- **A 30% REDUCTION IN HOSPITAL-ACQUIRED INFECTIONS;**
- **A MODEL OF CARE USED INTERNATIONALLY;**
- **A TOOL TO PROTECT HEALTH CARE WORKERS; AND**
- **DIAGNOSIS AND TREATMENT PLANS FOR DEMENTIA IN A DAY, NOT A YEAR.**

# RISKY BUSINESS: KEEPING ONE OF THE WORLD'S KEY WORKFORCES SAFE AND HEALTHY

New tool to protect health care workers

## AT A GLANCE

**WHO:** DR. ANNALEE YASSI, UNIVERSITY OF BRITISH COLUMBIA

**ISSUE:** HEALTH CARE WORKERS ARE IN DAILY DANGER OF EXPOSURE TO BIOLOGICAL AGENTS THAT CAUSE ILLNESS AND DEATH. BUT STANDARDS FOR PREVENTING INFECTION VARY WIDELY, AND NOW DRUG-RESISTANT TB POSES A MAJOR THREAT TO HEALTH CARE WORKERS IN DEVELOPING COUNTRIES.

**PROJECTS:** DR. YASSI LEADS SEVERAL RESEARCH PROJECTS AND KNOWLEDGE TRANSLATION EFFORTS TO IMPROVE INFECTION CONTROL IN NORTH AMERICA, CENTRAL AMERICA, SOUTH AMERICA AND AFRICA, INCLUDING THE DEVELOPMENT OF POSTGRADUATE PROGRAMS IN INFECTION CONTROL IN ECUADOR AND A FIVE-YEAR CIHR-SUPPORTED INITIATIVE TO REDUCE THE BURDEN OF HIV/TB INFECTION AMONG HEALTH CARE WORKERS IN SOUTH AFRICA.

**RESEARCH EVIDENCE:** DR. YASSI AND HER COLLEAGUES DEVELOPED A WEB-BASED MONITORING TOOL CALLED OHASIS (OCCUPATIONAL HEALTH AND SAFETY INFORMATION SYSTEM) THAT TRACKS INCIDENTS, EXPOSURES, RISK FACTORS, IMMUNIZATIONS, INJURIES AND DISEASES OF HEALTH WORKERS. THE TEAM ALSO CREATED INTERACTIVE TRAINING MODULES TO TEACH HEALTH CARE WORKERS ABOUT INFECTION CONTROL PROTOCOLS.

**EVIDENCE IN ACTION:** OHASIS IS OPERATIONAL IN SOUTH AFRICA AND IS BEING MADE AVAILABLE TO HOSPITALS IN THE UNITED STATES. ECUADOR IS IN THE PROCESS OF IMPLEMENTING IT, WHILE SPAIN, COLOMBIA AND GHANA HAVE EXPRESSED INTEREST. DR. YASSI ALSO CO-AUTHORED THE DRAFT GUIDELINES TO IMPROVE HEALTH WORKERS' ACCESS TO HIV AND TB PREVENTION, TREATMENT, CARE AND SUPPORT PUBLISHED IN 2010 BY THE WORLD HEALTH ORGANIZATION, THE INTERNATIONAL LABOUR ORGANIZATION AND UNAIDS.

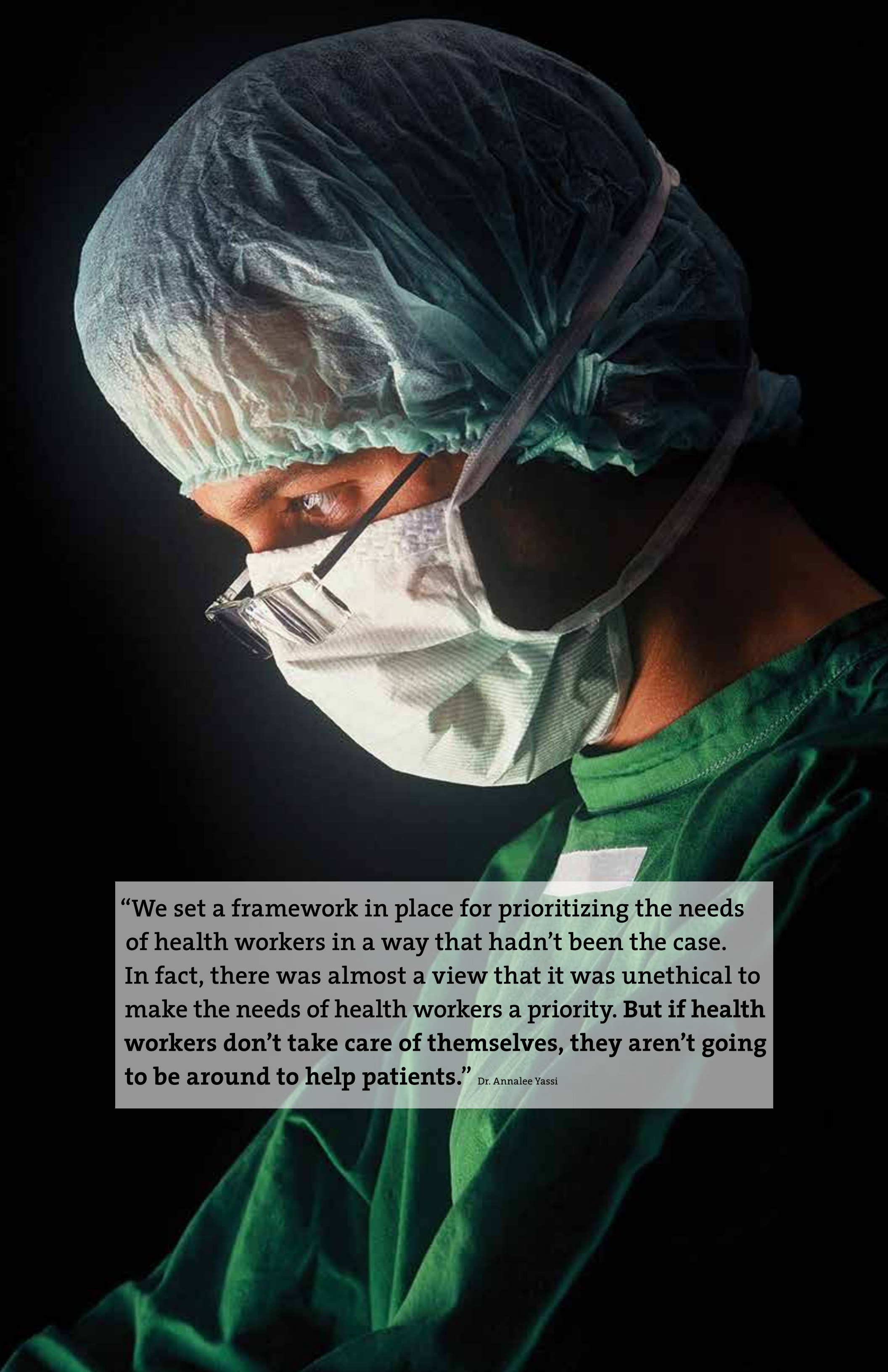
**SOURCES:** COLLABORATION BETWEEN INFECTION CONTROL AND OCCUPATIONAL HEALTH IN THREE CONTINENTS: A SUCCESS STORY WITH INTERNATIONAL IMPACT, *BMC INTERNATIONAL HEALTH AND HUMAN RIGHTS* 11 (SUPPL 2):S8 (2011): DOI:10.1186/1472-698X-11-S2-S8.

Front-line health care is a risky business. With almost 30 million physicians and nurses/midwives<sup>1</sup> and more than 59 million people employed at clinics,<sup>2</sup> health care workers make up a key global workforce that is in daily danger of exposure to biological agents that cause illness and death.

The SARS outbreak of 2003 drove that fact home: in 72% of Ontario's 375 cases, people contracted the infection in a health care setting. Of that group, 45% were health care workers – most of them nurses.<sup>3</sup> Globally, health care workers were at the highest risk, accounting for one-fifth of all SARS patients.<sup>4</sup> More recently, in low- and middle-income countries, where tuberculosis (TB) continues to be a blight, health workers are at high risk of developing a multi-drug resistant form of the lung disease. As well, people who work in clinics are at increased risk of contracting hepatitis B and C, among other infectious diseases.

After the SARS pandemic showed how rapidly infection could race across the globe and rage through hospitals and clinics, Dr. Annalee Yassi, co-founder of the University of British Columbia's Global Health Research Program, formed a partnership with Dr. Elizabeth Bryce. Their work, which began as a CIHR-funded research project to find ways to put sustainable infection-control practices in place, quickly grew into an international collaboration that is active in several countries on four continents and has produced a number of key tools.





**“We set a framework in place for prioritizing the needs of health workers in a way that hadn’t been the case. In fact, there was almost a view that it was unethical to make the needs of health workers a priority. But if health workers don’t take care of themselves, they aren’t going to be around to help patients.”**

Dr. Annalee Yassi

One such output is the Occupational Health and Safety Information System (OHASIS), a user-friendly, web-based system to track incidents, exposures, risk factors, immunizations, injuries and diseases of health workers. OHASIS is a database that health care managers and health and safety personnel can use to monitor the workforce and see what needs to be done to keep health care workers safe and healthy. For example, if the data shows needle-stick incidents to be higher in one department, action can be taken to improve training and revisit procedures. The team also created online tools such as the “Protect Patti” interactive cartoon that teaches the proper selection, donning and doffing of personal protective equipment to prevent infection. Another tool consists of a five-lesson “Infection Control Basics” module that covers everything from effective hand washing to the proper protocols for cleaning up blood or body fluids.

In South Africa, Dr. Barry Kistnasamy, Executive Director of the National Institute for Occupational Health (NIOH), sees OHASIS playing a key role in the lab system’s TB-prevention campaign: “OHASIS will cover preventive interventions but also act as a sentinel warning system, through its employee health examinations and incident-reporting portal, to pick up employees who have TB. At an individual level it will provide feedback to the employee and ensure that due interventions are made. At a group level, the information will highlight which laboratory workplaces are at risk for higher TB incidence, ensuring that appropriate workplace assessments are conducted and solutions found.”

Ecuador is embracing the system as part of its infection control efforts in health care settings. “We are embedding the OHASIS platform in the design of our information and communications resource that we are working on with the Ministry of Health,” says Dr. Jaime Breilh of the Universidad Andina Simón Bolívar in Quito.

#### BEYOND OHASIS

In both Ecuador and South Africa, OHASIS is part of a larger contribution to public health. Dr. Yassi’s UBC team collaborated with the Pan American Health Organization to prevent transmission of infectious diseases among Ecuador’s health care workers. Dr. Yassi and her colleagues have worked in partnership with the country’s Ministry of Health to adapt a made-in-Canada workplace assessment tool – a checklist of physical, chemical, biological, ergonomic, safety and psychological hazards – and conducted a survey to assess knowledge, attitudes and practices at three hospitals. Through this OHASIS-precursor work, they have been able to pinpoint weaknesses and initiate projects such as campaigns to improve hand hygiene to reduce infection transmission.

Dr. Yassi and her colleagues have also helped establish a master’s program and PhD program in Ecuador that, so far, has attracted candidates from six Latin American countries.

“The goal is to build capacity by training people who can then train others in infection control and workplace safety,” says Dr. Breilh. “Dr. Yassi’s contribution and UBC’s contribution in helping us – their auspices, their direct presence as researchers, their teaching – all of these things have boosted a new stage of development of what we broadly call public health.”

In South Africa, funded by CIHR and the Global Health Research Initiative, the UBC team is working to boost the country’s capacity to design, implement and evaluate programs to improve health workers’ access to TB prevention, care and support.

“In Canada, we don’t realize the huge scourge that HIV and TB is playing in the health care sector globally,” says Dr. Yassi. “The South African Department of Health estimated that more than 30% of women who were pregnant in 2010 were infected with HIV. The dual epidemic of HIV and TB is a cause for concern for health care workers who are at high risk of exposure to TB in health care settings.”

Dr. Yassi’s efforts are being noticed. According to Susan Wilburn, technical officer in the World Health Organization’s Department of Public Health and Environment in Geneva, the South Africa project is indicative of Dr. Yassi’s ability to “find good partners and work well with them.” She sees the UBC team’s work as creating a model for global use.

“This is demonstrated by the way they have worked so effectively with colleagues in the Free State in South Africa to implement OHASIS, and the fact that the NIOH has said, ‘This is exactly what we need to manage our occupational health program in our laboratories in the national health system’ – I can’t imagine stronger uptake anywhere. Dr. Yassi is doing really important work in South Africa that has importance globally.”

1 World Health Organization, World Health Statistics 2011: [www.who.int/whosis/whostat/2011/en/index.html](http://www.who.int/whosis/whostat/2011/en/index.html).

2 World Health Organization, Health workers: [www.who.int/occupational\\_health/topics/hcworkers/en/index.html](http://www.who.int/occupational_health/topics/hcworkers/en/index.html).

3 The SARS Commission Executive Summary, *Spring of Fear 1* (Dec. 2006), p. 12. Available at [www.ontla.on.ca/library/repository/mon/16000/268478.pdf](http://www.ontla.on.ca/library/repository/mon/16000/268478.pdf).

4 Severe acute respiratory syndrome (SARS) and healthcare workers. *International Journal of Occupational and Environmental Health* 10, 4 (Oct.-Dec. 2004): 421–427.

## WRITING THE BOOK ON PROTECTING HEALTH CARE WORKERS FROM HIV/TB

IN 2010, THE JOINT WHO-ILO-UNAIDS POLICY GUIDELINES ON IMPROVING HEALTH WORKERS’ ACCESS TO HIV AND TB PREVENTION, TREATMENT, CARE AND SUPPORT SERVICES WARNED OF THE DUAL EPIDEMIC THREAT TO HEALTH CARE WORKERS. THE THREE AGENCIES REPORTED THAT WHILE HEALTH WORKERS “EXPERIENCE MORBIDITY AND MORTALITY DUE TO EXPOSURE TO HIV AND TB AT WORK AND IN THEIR LOCAL COMMUNITIES,” THEY OFTEN DO NOT HAVE ACCESS TO HIV AND TB PREVENTION AND TREATMENT SERVICES. IN PUBLISHING THE GUIDELINES, THE AGENCIES SINGLED OUT THE CONTRIBUTION OF DR. YASSI, GRADUATE STUDENT LYNDSEY DYBKA AND THE UBC TEAM FOR CONDUCTING THE SYSTEMATIC REVIEW OF EVIDENCE, DEVELOPING THE BACKGROUND SYNTHESIS REPORT AND WRITING THE INITIAL DRAFT OF THE GUIDELINES.

#### FOR MORE INFORMATION:

Assuming our global responsibility: improving working conditions for health care workers globally, *Open Medicine* 3, 3 (2009): 174–177.

Collaboration between infection control and occupational health in three continents: a success story with international impact, *BMC International Health and Human Rights* 11 (Suppl 2):S8 (2011): doi:10.1186/1472-698X-11-S2-S8.

View the “Protect Patti” instructional video at: [innovation.ghrp.ubc.ca/ProtectPatti/eng/](http://innovation.ghrp.ubc.ca/ProtectPatti/eng/).

World Health Organization, Global tuberculosis control 2011: [www.who.int/tb/publications/global\\_report/2011/en/index.html](http://www.who.int/tb/publications/global_report/2011/en/index.html).

World Health Organization, The joint WHO-ILO-UNAIDS policy guidelines on improving health workers’ access to HIV and TB prevention, treatment, care and support services: [www.who.int/occupational\\_health/publications/hiv\\_tb\\_guidelines/en/index.html](http://www.who.int/occupational_health/publications/hiv_tb_guidelines/en/index.html).

Video with Dr. Yassi: [www.youtube.com/healthresearchcanada](http://www.youtube.com/healthresearchcanada).





**EVIDENCE IN ACTION: A TOOL TO PROTECT HEALTH CARE WORKERS**

**DR. YASSI AND HER COLLEAGUES HAVE PARTNERED WITH THE NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH IN SOUTH AFRICA TO ROLL OUT OHASIS ACROSS THAT COUNTRY'S NATIONAL HEALTH LABORATORY SYSTEM, WHICH HAS 349 LABS AND APPROXIMATELY 7,000 EMPLOYEES AT 150 SITES, AND AT THREE HOSPITALS IN THE FREE STATE PROVINCE. HER TEAM IS WORKING WITH THE US NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH AND SAFETY (PART OF THE CENTERS FOR DISEASE CONTROL AND PREVENTION) TO MAKE OHASIS AVAILABLE AT US HOSPITALS. SPAIN, GHANA AND COLOMBIA HAVE EXPRESSED INTEREST, WHILE ECUADOR AND THE CITY OF VIENNA ARE IN THE PLANNING STAGES OF IMPLEMENTATION.**