COVID-19 PANDEMIC AND INDONESIAN HEALTH SYSTEMS RESILIENCE: Lessons Learned and Ways Forward

Professor Inaugural Speech
Public Health Science
Faculty of Medicine
Universitas Sebelas Maret

Delivered in General Academic Senate Assembly
Universitas Sebelas Maret
20th of May, 2020

By:

Prof. Ari Natalia Probandari, dr., M.P.H., Ph.D.

UNIVERSITAS SEBELAS MARET
SURAKARTA
2020

Prof. Ari Natalia Probandari, dr., M.P.H., Ph.D.

Public Health Science
Faculty of Medicine
Universitas Sebelas Maret

COVID-19 PANDEMIC AND INDONESIAN HEALTH SYSTEMS RESILIENCE: Lessons Learned and Ways Forward

Professor Inaugural Speech
Public Health Science
Faculty of Medicine
Universitas Sebelas Maret

Delivered in General Academic Senate Assembly
Universitas Sebelas Maret
20th of May, 2020

By:

Prof. Ari Natalia Probandari, dr., M.P.H., Ph.D.

UNIVERSITAS SEBELAS MARET
SURAKARTA
2020

Your excellency,

Rector of Universitas Sebelas Maret,

Chair of Academic Senate,

Vice-Rectors,

Secretary and members of the academic senate,

Deans and Directors,

Head of Departments,

Academic staff and students,

Journalists,

Families and relatives,

And all audiences that follow this event through teleconference and social media.

Good Afternoon

Assalamualaikum warahmatullahi wabarakatuh

Selamat Siang

Salam Damai Sejahtera untuk kita semua

Om Swastyastu

Namo Buddhaya

Salam Kebajikan

Ladies and gentlemen,

First of all, let us give thanks to God the Almighty for giving us blessings, strengths, and love within these days of COVID-19 pandemic.

Today, 20th of May 2020, our nation commemorates the national resurgence day. On 20th of May 1908, several medical students at STOVIA medical school established Boedi Oetomo, the first national movement organization in Indonesia. This action triggered thinking of Indonesia as a nation. Taking this important day, I deliver my speech in the inauguration as a Professor in Public Health in the Faculty of Medicine, Universitas Sebelas Maret. My speech is entitled, COVID-19 pandemic and Indonesian health systems resilience: lessons learned and ways forward.

Health systems

Ladies and gentlemen,

Health systems are defined as "the people, institution and resources, arranged together in accordance with established policies, to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health." (WHO, 2000). The definition covers essential, inter-related aspects that working together to improve the population health status.

In health systems, there are six subsystems that called six building blocks, including governance and leadership, financing, medicine and medical technologies, human resources, health services provision, and health information systems. To improve the health of the population, we need good access to quality health services. The provision of health services requires sufficient and competent health

workforces and optimum health infrastructure (drugs and medical technologies). Valid, reliable, and timely health information supports the provision of health services. All of those efforts need financing and regulation in all subsystems.

World Health Organization (2010) illustrated indicators of well-functioning health systems. Elaborating that concept, we could assess the performance of the health system by analysing the performance of the health system building blocks. For example, in well-functioning governance and leadership, there are effective regulation and enforcement mechanisms and effective policy dialogue with other sectors. Good governance needs valid information on health challenges. Useful health information provides timely information, for example, on disease surveillance, access to health services, and human resources for health. Well-performing health financing is characterized by available and productive systems to raise funds for health systems. This is necessary to provide universal coverage to protect the community from catastrophic cost due to diseases and to remove financial barriers to access health service. A well-performing health workforces is characterized by sufficient, well-distributed, and competent health staff to provide quality health services. We cannot say that health systems have been well-functioning if there is suboptimal service delivery.

Health systems resilience

All distinguish audience,

The reality says the fragility of health systems is often revealed when they received struck like the situation of disease outbreak,

conflicts, and other disruption to the health of the population (Kieny et al., 2014). Those situations triggered a surge of demand for health services and responses in other subsystems of health systems (Kruk et al., 2015). In other words, the performance of health systems is reflected by the level of health system resilience. Health system resilience can be defined as "the capacity of health actors, institutions, and populations to prepare for and effectively **respond to crises**; **maintain core functions** when a crisis hits; and, **informed by lessons learned** during the crisis, **reorganize** if conditions require it."

Let us use a synthesis of arguments on health systems resilient in a various context like Ebola outbreak in Africa (Kruk et al., 2015), waves of refugees in Lebanon and Syrian (Ammar et al., 2016) to provide useful lessons learned about the health systems resilience in relation with COVID-19 pandemic. There are **four characteristics of resilient health systems, i.e., aware, diverse, self-regulating, and integrated** (Kruk et al., 2015). Resilient health systems have updated and utilized the health information system on the status of systems and potential risks of crisis. They should be diverse to address a broad spectrum of health challenges at all levels, including primary health care facilities. Resilient health systems are self-regulating, presenting the ability to recognize and isolate the public health problem, reducing any unnecessary disruption of essential health service provision during the crisis, and identify available locations with excess capacity. Moreover, resilient health systems allow the integration of actors and ideas for the development of collegial actions for crisis solutions.

COVID-19 pandemic and health systems resilience

Disease outbreak has been shocking for the health system in many countries, including Indonesia. The COVID-19 crisis has been providing us the realities of our health systems resilience. As of 9th of May, 2020, the COVID-19 has affected 13,645 people in Indonesia, with 959 mortality. Furthermore, there were 29,690 probable cases in hospitals across the country (https://covid19.go.id/peta-sebaran, 2020).

Using Kruk et al.'s framework of resilient health systems (aware, diverse, self-regulating, and integrated), let us reflect the performance of the Indonesian health systems in responding to the COVID-19 pandemic.

Our government was late to response to the threat of the COVID-19 pandemic in Indonesia (Djalante et al., 2020). In early February 2020, a modelling study revealed a potential transmission of COVID-19 in Indonesia. However, the Ministry of Health did not utilize that information for a better outbreak response. After the announcement of the first two cases of COVID-19 in Indonesia, the government provides a web-based live data on the progress of COVID-19 case detection and treatment. However, data transparency and validation have been criticized. Nevertheless, in the situation of the COVID-19 pandemic, there is **a demand for real-time, valid, and reliable disease monitoring systems** (Leon et al., 2020) for case detection, contact tracing and monitoring the isolation and care.

The COVID-19 pandemic is a test for our supply chain management of medical supplies and technology. During the early pandemic, there is a resurge of the need for medical supplies, while

the availability was limited. Many hospitals and primary health care facilities announced through social media that they lacked personal protective equipment for their staff. Many people were panic and utilized medical personal protection devices, which made the problem worse.

We learned that the capacity of the diagnostic of infectious diseases like COVID-19 in primary health care facilities is lacking. In addition to that, the capacity of the referral health care facilities is not prepared for a sudden increase of diagnostic tests. On 19th of March, 2020 President Joko Widodo announced the plan of having mass rapid diagnostic tests. However, the decision received critics due to improper selection of the type of rapid diagnostic test. Later, the government with a consortium of universities started to have a research for a better rapid diagnostic test. **Up to recent, the coverage of diagnostic test for COVID-19 in Indonesia, is still below the world's average.**

Similarly, for the medical technology, in the early response to the pandemic, many hospitals suffered from lacking ventilators. In April 2020, the government announced the plan to have mass production of ventilators in collaboration with universities and industries. In fact, the COVID-19 pandemic has been acting as **a lesson that health is not the business of health care facilities and the government only.** COVID-19 pandemic induced responses also from the public, industry, and other sectors (Elavarasan & Pugazhendhi, 2020). South Korea was succeeded to respond to the COVID-19 outbreak by a rapid development of new diagnostic tools and used that for screening the population (Oh et al., 2020). This show lesson that domestic capacity and coordination among various

sectors are important aspects to aware, diverse, self-regulating, and integrated health systems.

The COVID-19 pandemic revealed reality on lacking awareness and proper practice of infection control. We learned that many medical staff and nurses passed away due to COVID-19 as a result of transmission in health facilities. In the condition of personal protection equipment shortage, many health staff had less motivation to keep the service. This is humane. Previous research showed that even in the normal situation, lacking personal protective equipment and supportive infrastructure of infection control influenced the motivation of health staff in providing services for patients with an infectious respiratory disease like Tuberculosis (Probandari et al., 2019; Zinatsa et al., 2018). We thank solidarity movements by the contribution of providing hazmat gown, surgical mask, and face shields for health staff, even though there was a case of suboptimal quality. The response of the government and private sectors to increase the level of production of personal protective equipment had contributed to a better supply.

Responding to the COVID-19 pandemic, many hospitals and primary health care providers limit the services, particularly for chronic diseases, and change the face-to-face consultation to online interactions. Many webinars have been organized to discuss the existing evidence that could be used for health care services in the midst of the COVID-19 pandemic. This phenomenon also happened in other countries. Telemedicine has been used for delivering health services in the United States during the pandemic (Ohannessian et al., 2020). Mobile apps and other digital health solutions have been adopted to providing health services in Spain (Sust et al., 2020).

Hence, **the COVID-19 pandemic exposed the demand for safe and evidence-based health services by utilizing digital technologies.**

We learned the phenomenon of stigma and discrimination to COVID-19 patients and health staff. It reflects an iceberg phenomenon of stigma and discrimination related to infectious diseases because those problems have been identified and acknowledged for many years (Craig et al., 2017). **COVID-19 pandemic gives us lessons that we have not successfully reduced the stigma and discrimination due to infectious diseases.**

While **there have been increasing access to COVID-19 information on social media in global level** (Abd-Alrazaq et al., 2020), including Indonesia, social media provide challenges on the spread of fake news on COVID-19 (Sentell et al., 2020; Djalante et al., 2020). This reality gives us lessons about how people access and utilize health information during the pandemic. It perhaps also modes of our public health communication in the future. Our government provides a daily update on the COVID-19 epidemiology. However, the question is how the information influences the awareness of the community to contribute to the existing efforts to flatten the epidemic curve. In everyday life in Indonesia, we still find people without proper personal protective equipment and physical distancing on streets and markets.

The policy of social distancing initiated by the national government was challenged in the context of decentralization. Further, coordination among ministries and local government has been initiated. However, we learned that the implementation of the policy on ground level is not systematic.

COVID-19 pandemic influenced the performance of other disease control programs. A recent modeling study from WHO estimated a decrease in the global Tuberculosis detection by 25% during three months of pandemic compared to the period before the pandemic. The study also predicted a 13% increase in tuberculosis death during the COVID-19 pandemic (Glaziou, 2020). That happened because of the lockdown and reallocation of health personnel and equipment to respond COVID-19 pandemic. The recent national Tuberculosis program showed the lower performance of the national tuberculosis indicators during the first quarter (Q1) of 2020 (January-April 2020) compared to the same quarter in 2019. For instance, the number of notified drug-sensitive Tuberculosis cases in Q1 2020 is only 34,289 compared to 145,307 in the Q1 of 2019. The treatment success rate for drug-sensitive tuberculosis cases in the Q1 of 2020 in national and all provinces in Indonesia are less than the target of 90%. There are concerns about the potential unnecessary impact of COVID-19 pandemic to the morbidity and mortality of non-communicable diseases like hypertension, cardiovascular diseases (Kluge et al. 2020; Yang et al., 2020) and mental health (WHO Europe, 2020; Yao et al., 2020).

Meanwhile, the operational budget for the health programs is reallocated for the COVID-19 pandemic response. However, COVID-19 pandemic should not shift our attention **to keep the core function of public health programs.** The cost due to reducing the performance of other disease control programs will be unnecessary priceless.

Now, let us answer this question: are our health systems aware, diverse, self-regulating, and integrated? We should appreciate all the efforts from all parties in the phase of the disaster response of the

COVID-19 pandemic. However, facts showed that the health systems are not adequately resilient, particularly in the early response of disease outbreak. Gradually, our health systems are learning to strengthen themselves. The access to screening, diagnosis, and treatment of COVID-19 has been improving. However, without sufficient awareness of the community on the strategy to reduce the transmission of COVID-19, we could not have better health system resilience. We also learned that our health systems are insufficient for keeping the core public health functioning. Our community could be both supporter and barrier to the health systems resilience.

How can we better strengthen the resilience of Indonesian health systems to prepare for the crisis due to disease outbreak?

I agree with the arguments of others that "the COVID-19 crisis will force us to reimagine the broken systems of health." (Shamasunder et al., 2020). Adapting the conceptual frameworks on resilient health systems (Kruk et al., 2015, Nuzzo et al., 2019), I would propose **nine recommendations to the national and local government as the way forward for preparing health systems to the potential crisis related to the disease outbreak**. The recommendations are shortened in the acronym of RESILIENT.

R : **reorganize the health services provision in Indonesia by strengthening the role of primary health care facilities in preventive services**. The investment should be given to improve human resource capacity to conduct screening,

contact tracing, and surveillance. It will reduce the burden of referral health care facilities in outbreak response. Health staff in public and private health care facilities should receive better training on infection control. This is essential to support their motivation in providing health services and ensure the optimal quality of services.

E : **Ensure the production and access to medical supplies and technology, including the infrastructures of infection control, screening, diagnostic, and treatment.** Nevertheless, domestic capacity in the national industry should be improved and the dependency to imported supplies and rapid diagnostic as well as other medical technologies should be minimized. More investment to the development of medicine and medical technologies should be made. Incentives should be given to the production of innovation.

S : **Support the utilization of innovative procedures to provide quality health services**, like the use of telemedicine for health services. More research should be conducted to give us knowledge on the current situation of the Indonesian health systems and identify which part of the health systems should be organized. We have to assess how the pandemic changes the treatment-seeking behavior of community. We have to find "the new normal" for our health care provision.

I : **Improve surveillance systems that could be adapted and prepared for 'a new disease' and provide valid, reliable, and timely information**. The availability and utilization of valid, reliable, and timely surveillance systems will provide

evidence for policy-making within the dynamic situation of the disease outbreak. The improvement should include the development of an algorithm of the new disease in integration with other diagnostic algorithms of other disease with similar symptoms. For example, there is a need for the development of an algorithm to differentiating influenza, pneumonia, and TB. Internet of things will be a potential technology for supporting disease surveillance systems in the future.

L : Look into evidence on the unnecessary impact of disease outbreak to the health status of the population in order to reorganize the health systems if necessary. It includes the impact of the crisis on other communicable diseases and non-communicable diseases.

I : Investment in health systems strengthening, including industry 4.0. technologies and other innovations that can support the health services provision, health information, and human resource capacity building.

E : Extend massive public health education with a proper communication strategy to improve health literacy at all levels. Public health education should involve religious leaders and informal community actors. Interprofessional collaboration with social scientists is needed in developing and implementing communication strategy. The utilization of social media to support health systems strengthening should further explored.

N : Nurturing the governance and leadership at the implementation level. It covers leadership in at the national

level among ministries and coordination between surrounding districts and provinces. The national government should keep the role of leading the "orchestra" of various stakeholders in the national and local context

T : Tailor resources management to keep the core public health programs in Indonesia. It will prevent higher catastrophic costs due to undermanaged public health programs during the pandemic.

I agree with the argument of our national government "to have a peace with COVID-19 and to adapt the new normal". However, in order to have better new normal, we have to improve our health systems resilience.

Ladies and gentlemen,

Before I end this speech, let me express my sincere gratitude to Allah the Almighty who gave me blessing, strength and health so that I could deliver my speech today. I would also give my appreciations to individuals and institutions that contributed to this academic achievement in both Bahasa Indonesia and English.

I express my deepest gratitude to the Minister of Education and Culture, Republic of Indonesia for the decision to promote me for this highest academic position as a professor in Public Health. I also thank Rector and Vice Rectors, the Chair, Secretary and Members of the Academic Senate of Universitas Sebelas Maret for support me to this professorship promotion. I also express my gratitude to the Dean and Vice Deans of the Faculty of Medicine Universitas Sebelas Maret for their support.

My sincere thanks goes to Prof. Dr. Hartono, dr, M.Si., and Dr. Budiyanti Wiboworini, dr, M.Kes., SpGK, the Dean and Vice Dean of the Faculty of Medicine Universitas Sebelas Maret period of 2015-2019 for all directions, support and advice. Thank you to Prof. Drs. Suranto, M.Sc., Ph.D., and Prof. Dr. Tulus Haryono, S.E., M.Ek. for their support and advice during the application of professorship promotion.

I also thank to the inauguration assistance team: Prof. Drs. Hasan Fauzi, M.B.A., Ph.D., Ak.; Prof. Dr. Agr. Ir. Vita Ratri Cahyani, M.P.; Prof. Drs. Suranto Tjiptowibisono, M.Sc., Ph.D., Prof. Dr. Wakit, M.Hum., Prof. Dr. Mahendra Wijaya, M.S., Prof. Dr. Dwi Aries Himawanto, S.T., M.T., Prof. Dr. Sarwiji Suwandi, M.Pd., Prof. Drs. Djoko Suhardjanto, M.Com (Hon), Ph.D., Ak, Prof. Dr. Soetrisno, dr., Sp.OG(K), Prof. Dr. Hartiwiningsih, S.H., M.Hum., Prof. Dr. Agus Kristiyanto, M.Pd., and Prof. Dr. Narsen Afatara, MS, and all Senate secretariat office staff for guidance and assistance during the preparation of this inauguration ceremony. Special thanks for dr. Vitri Widyaningsih, M.S., Ph.D., dr. Maria Endang Sumiwi, M.P.H. and Dr. Eti Poncorini Pamungkasari, dr., M.Pd. who gave inputs on this speech. I thank all staff at the faculty and university level who helped with the preparation.

Ungkapan terima kasih saya pada guru-guru saya di SDN Cengklik I Surakarta, SMPN 1 Surakarta, SMAN 1 Surakarta yang telah menanamkan rasa cinta kepada ilmu pengetahuan. Terima kasih juga saya sampaikan kepada dosen-dosen saya di Fakultas Kedokteran Universitas Gadjah Mada atas inspirasi dan teladan menjadi dokter-dosen-peneliti. My sincere gratitude to the late Prof. Iwan Dwi Prahasto, dr. MSc., Ph.D. who

passed away due COVID-19. I will remember his last advice to me for conducting research for the benefits of Indonesia.

Thank to Prof. Anna-Winkvist, Prof. Anna Karin Hurtig, Prof. Lars Lindholm and Prof. Adi Utarini, dr, M.Sc., M.P.H., Ph.D. who were my supervisors during the training for master and doctoral degree. They are my role models of humble scientists.

*Kasih Allah sungguh hadir melalui orang-orang yang menjadi teman perjalanan akademik dan kehidupan saya**. Kepada teman sejawat saya di Bagian Ilmu Kesehatan Masyarakat Fakultas Kedokteran Universitas Sebelas Maret**: Dr. Sumardiyono, S.K.M., M.Kes, Dr. Eti Poncorini Pamungkasari, dr, M.Pd., dr. Vitri Widyaningsih, M.S., Ph.D., dr. Balqis, M.Sc., FM-CM., dr. Arsita Eka Prasetyawati, M.Kes., Dr. Anik Lestari, dr, M.Kes., Dr. Diffah Hanim, dra, M.Si. Kepada para senior saya: Prof. A.A. Subijanto, dr, M.S., Prof. Dr. Santoso, dr, SpOk, Prof. Bhisma Murti, dr, M.P.H., M.Sc., Ph.D., Prof. Dr. Endang Sutisna Sulaeman dr, M.Kes, dr. Liana Damayanti, M.Kes, Drs. Harjono, M.Kes. atas dukungan yang diberikan.*

Kepada para kolega saya di Jejaring Riset Tuberkulosis Indonesia, dan Komite Ahli Tuberkulosis Kementerian Kesehatan Republik Indonesia *saya ucapkan banyak terima kasih. Khususnya Dr. Bachti Alisjahbana, Sp.PD(KPTI), Ph.D. yang telah memberikan kepercayaan pada saya untuk menjadi bagian dari jejaring riset yang luar biasa. Terima kasih kepada Prof. Dr. Chatarina Umbul Wahyuni, dr, MS dan Dr. Bagoes Widjanarko, dr, MA yang telah memberi banyak kesempatan untuk berjejaring dalam pendidikan. Kepada para senior dan kolega lain: dr. Pandu Riono, Ph.D., M. Noor Farid Ph.D, dr. Sumanto Simon, Sp.PK, Ph.D, Dr. Wayan Gede Artawan Eka Putra, Dr. Erlina Burhan, SpP(K), dr, M.Epid, Prof. Rovina Ruslami, dr, SpPD, Ph.D, dr. Finny Fitry Yani*

SpA(K), Prof. Sudijanto Kamso, Dr. dr. Soedarsono, SpP(K), dr. Maria Regina Loprang, dr. Setiawan Jatilaksono, drg. Rina Handayani, dra. Retno Budiati, Nurjanah, S.K.M., M.Kes, dr. Asik Surya, M.P.P.M., drg. Dyah Erti Mustikawati, M.P.H., dr. Wiendra Waworuntu, M. Kes., and dr. Imran Pambudi, M.P.M.H.

In this important event, I would like to thank Pusat Kedokteran Tropis UGM, Pusat Kebijakan dan Manajemen Kesehatan UGM, Balai Besar Kesehatan Paru Surakarta, Yayasan KNCV Indonesia, Subdit Tuberkulosis Kementerian Kesehatan, Regional Training Center WHO Tropical Disease Research Asia Tenggara, WHO Jakarta, WHO Tropical Disease Research, USAID, European Commission, and Alliance for Health Policy and Systems Research for the opportunity for collaboration in research, training and consultations.

To all Indonesian research collaborators who have been working together with spirit of collegiality: dr. Yodi Mahendradhata, M.Sc., Ph.D. (UGM), dr. Riris Andono Ahmad, MPH, Ph.D. (UGM), Prof. Adi Utarini, dr, M.Sc., M.P.H., Ph.D. (UGM), dr. Elsa Herdiana, M.Kes., Ph.D. (UGM), dr. Yanri Subronto, SpPD(KPTI) Ph.D (UGM), Dr. Dra. Siwi Retna Padmawati, MA (UGM), Prof. Tri Wibawa, dr, SpMK, Ph.D (UGM), Prof. Laksono Trisnantoro, dr, MSc (UGM), dr. Astri Ferdiana, MPH, Ph.D (Unram), dr. Trisasi Lestari, MPH (UGM), Luthfi Azizatunnisa, S.Ked, MPH (UGM), Utsamani Cintyamena (UGM), dr. Rina Triasih, SpA(K), Ph.D. (UGM), dr. Harry Parathon Sp.O.G. (UNAIR), dr. Luh Putu Lila Wulandari, M.Sc., Ph.D. (Universitas Udayana), Deni Harbianto, SE, M.Ec, Fransiska Meyanti Sitorus, S.K.M., M.K.M., Sampir Widayati, SKM, M.Ec.Dev (Kabupaten Bantul, DIY), and Edi Sunandar, S.K.M., M.Kes (Dinas Kesehatan Provinsi Papua Barat).

Thanks to all international partners for fruitful collaborations: Prof. Virginia Wiseman (UNSW Australia), Dr. Shunmay Yeung Ph.D. (London School of Hygiene and Tropical Medicine UK), Marco Liverani Ph.D (London School of Hygiene and Tropical Medicine UK), Prof. Stephen Jan (the George Institute for Global Health Australia), Prof John Kaldor (UNSW Australia), Prof Rebecca Guy (UNSW Australia), Gill Schierhout, Ph.D (the George Institute for Global Health Australia), Prof. Nawi Ng (University of Gothenburg, Sweden), Ailiana Santosa, MD, Ph.D (University of Gothenburg, Sweden), Anni-Maria Pulkki-Brannstrom Ph.D (Umea University, Sweden), Prof. Maarten Postma (University of Groningen, the Netherland), Dr. Jaap Koot Ph.D (University of Medical Center Groningen, the Netherland), dan Dr. Jeanet Landsman-Dijkstra (University of Medical Center Groningen, the Netherland).

Terima kasih tulus kepada para sahabat di Masyarakat Lantai 7 Sahaja Gedung Pendidikan Dokter FK UNS *(Dra. Sri Haryati, M.Kes., dr. Amelia Sp.GK, dr, Kusmadewi Eka Damayanti, M.Kes., Dra. Yulia Sari, M.Kes., dr. Sigit Setyawan, M.Kes.* ***Kepada para sahabat di research group Disease Control dan research group Integrated Disease Management*** *(dr. Maryani, M.Si., Sp.MK, Dr. Ratih Puspita Febrinasari, dr, M.Sc., Siti Ma'rufah, S.Farm, Apt, M.Sc., Dr. Sri Mulyani, S.Kep, Ns, M.Kes., Dr. Isna Qadrijati, dr, M.Kes, dr. Yusuf Ari Mashuri, M.Sc., dr. Maryani, M.Si., Sp.MK dr. Widana Primaningtyas, MKM, dr. Heni Hastuti, MPH, dr. Lukman Aryoseto, M.K.M., Hary Agus Sanjoto, S.Sos, M.P.H.).* ***Terima kasih atas teman-teman di Unit Penjaminan Mutu Fakultas Kedokteran UNS yang menjadi rekan kerja sekaligus sahabat*** *(dr. Ratna Kusumawati, M.Kes, dr. Muthmainah, M.M.BioMed., ibu Ika Sumiyarsi, MSi.).* ***Untuk para sahabat yang ikut mempersiapkan acara ini****: Ibu Susilowati, S.E., dr. Andri Putranto,*

M.Si., Ibu Endang Martini, S.Pd., M.Si., Dr. Veronika Ika Budiastuti, dr., M.Pd.).

Terima kasih juga kepada para sahabat alumni Umea University Sweden *(dr. Maria Endang Sumiwi, M.P.H., Nurul Qodrijati, Ns, M.P.H., Elli Nur Hayati, S.Psi, M.P.H., Ph.D., Danardono, Ph.D., dr. Firdy Permana, M.P.H., Keluarga Yusuf Jauhary, dan keluarga Prof. Nawi Ng.)* yang telah menjadi keluarga saya ketika menempuh studi *master and doktoral*.

Penghargaan tulus juga saya sampaikan kepada berbagai komunitas yang membuat hidup saya menjadi lengkap dan berwarna *terutama: Gladhi Beksan Fakultas Kedokteran Universitas Sebelas Maret, Paduan Suara Adiswara Gadjah Mada, Para guru, pengelola dan pengurus Komite Sekolah SD Pangudi Luhur St. Timotius Surakarta, Komunitas Nguri-Uri Budaya Jawa, Komunitas Pogung 8ce, Alumni FK UGM 93, Alumni KMK FK UGM, Komunitas Yayasan ISKS, Komunitas Salam Tempel, Komunitas Dokter Katolik Solo Raya, Alumni SMP 1 SURAKARTA, KASMAJI, dan Komunitas Paguyuban Kristiani Universitas Sebelas Maret.*

Perjalanan saya tidak pernah akan sampai pada titik sekarang tanpa kehadiran dan dorongan keluarga. *Terima kasih kepada Ibu saya, Margaretha Prihatin Handayani yang menjadi pendidik sejati tentang kehidupan dan memberi teladan tentang kemandirian, harapan dan semangat hidup. Terima kasih untuk almarhum Bapak saya, FX. Musmin Padmowijaya yang telah memberi teladan tentang kesederhanaan, ketekunan dan kerja keras. Terima kasih atas pertanyaan Bapak ketika saya masih remaja, "Opo sing mbok goleki nang uripmu Nduk?" Pertanyaan itu telah menjadi pertanyaan refleksi saya setiap saat, agar saya mampu 'Maneges Kersanipun Gusti Allah' dalam hidup saya. Terima kasih kepada Bapak/Ibu*

Mertua saya: FX. Sungkono dan Almarhumah Theresia Maria Sri Hartini atas dukungan doa yang diberikan.

Terima kasih kepada kakak dan adik saya atas dukungan moral dan keguyuban: Agustinus Sudarisman S.Pd, Maria Theresia Rini Musmiyati, S.Pd, Ir. Gatot Prihandono, Dra. Hindriyati Nurwidyasworo, Ign Gonggo Prihatmono, S.K.M., M.Kes., drg. Damiana Endah Prabawati, Gandi Rahmawan Setyadi, S.T., M.T., Pupung Ratna Tunjung Puri S.T., dr. Banu Asmoro, drg. Nengah Tangkas, Bayu Murti, S.T., M.Sc., Ph.D., dr. Melna Agustiani Purba Sp.A., Agustinus Wisnu Murti, S.T., dan Briliana Pratiwi, S.T.

Terima kasih kepada suami saya, Gregorius Krisnohasmoro Murti, Dipl. Eng. FH atas cinta yang memberi kebebasan, kesediaan berbagi tugas rumah tangga, dan dorongan untuk mencapai hal yang terbaik.

Terima kasih untuk kedua anak saya, Bumi Praba Murti dan Tirta Praba Murti. Dua orang yang mengajarkan kepada saya tentang semangat, optimisme serta kerelaan menerima ketidaksempurnaan.

Terima kasih kepada Ibu Theresia Sri Kamtini dan Ibu Christina Srini atas kesetiaan kepada keluarga saya.

Akhir kata, terima kasih untuk semua orang yang sudah mengukir hidup saya sampai dengan saat ini, suatu rahmat panggilan Allah yang harus saya tanggapi dengan sikap syukur. Ad Majorem Dei Gloriam. Semua untuk Kemuliaan Tuhan.

Thanks for all audiences for being patient and giving attention to this speech. *Terima kasih kepada para wartawan yang meliput acara ini.*

Salam Damai Sejahtera untuk Kita Semua.

Mugi Rahayu Ingkang Sami Pinanggih.

REFERENCE

Ammar W, Kdouh O, Hammoud R, Hamadeh R, Harb H, et al. Health system resilience: Lebanon and the Syrian refugee crisis. Journal of Global Health 2016; 6(2): 1-9. doi: 10.7189/jogh.06.020704.

Craig GM, Daftary A, Engel N, O'Driscoll S, Loannaki A. Tuberculosis stigma as a social determinant of health: a systematic mapping review of research in low incidence countries. International Journal of Infectious Diseases 2017; 56: 90-100.

Djalante R, Lassa J, Setiamarga D, Sudjatma A, Indrawan M, et al. Review and analysis of current responses to COVID-19 in Indonesia: Period of January to March 2020. Progress in Disaster Science 2020; 6: 100091. doi: 10.1016/-j.pdisas.2020.100091.

Elavarasan RM, Pugazhendhi R. Restructured society and environment: a review on potential technological strategies to control the COVID-19 pandemic. Science of the Total Environment 2020. Pre-publication manuscript. https://doi.org/10.1016/j.scitotenv.2020.138858.

Glaziou P. Predicted impact of the COVID-19 pandemic on global tuberculosis deaths in 2020. https://www.medrxiv.org/-content/10.1101/2020.04.28.20079582v1

Gugus Tugas Percepatan Penanganan COVID-19. Peta Sebaran. https://covid19.go.id/peta-sebaran (accessed on 9th of May 2020)

Kieny MP, Evans DB, Schmets G, Kadandale S. Health-system resilience: reflections on the Ebola crisis in western Africa. Bull World Health Organ 2014; 92: 850. doi: http://dx.doi.org/10.2471/BLT.14.149278

Kluge HHP, Wickramasinghe K, Rippin HL, Mendes R, Peters DH, et al. Prevention and control of non-communicable diseases in the COVID-19 response. Lancet, May 08, 2020. doi: https://doi.org/10.1016/S0140-6736(20)31067-9.

Kruk M, Myers M, Varpilah ST, Dahn BT. What is a resilient health system? Lessons from Ebola. Lancet 2015; 385: 1910-12.

Leon DA, Shkolnikov VM, Smeeth L, Magnus P, Pechholdova M, Jarvis CJ. COVID-19: a need for real-time monitoring of weekly excess deaths. Lancet 2020. Published online April 22, 2020 https://doi.org/10.1016/S0140-6736(20)30933-8.

Oh J, Lee J-K, Schwarz D, Ratcliffe HL, Markuns JF, Hirschhhorn LR. National response to COVID-19 in the Republic of Korea and Lessons Learned for Other Countries. Health Systems and Reform 2020; 6(1): e1753464. https://doi.org/10.1080/23288604.2020.1753464.

Ohannessian R, Duong TA, Odone A. Global telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: a call to action. JMIR Public Health and Surveill 2020; 6(2):e18810. doi: 10.2196/18810.

Nuzzo JB, Meyer D, Snyder M, Ravi SJ, Lapascu A, et al. What makes health systems resilient against infectious disease outbreaks and natural hazards? Results from a scoping review. BMC Public Health 2019; 19: 1310. doi: 10.1186/s12889-019-7707-z.

Probandari A, Sanjoto H, Mahanani MR, Azizatunnisa L, Widayati S. Being safe, feeling safe, and stigmatizing attitude among primary health care staff in providing multidrug-resistant tuberculosis care in Bantul District, Yogyakarta Province, Indonesia. Human Resources for Health 2019; 17:16.

Sentell T, Vamos S, Okan O. Interdisciplinary perspectives on health literacy research around the world: more important than ever in a time of COVID-19. Int. J. of Environ. Res. Public Health 2020; 17: 3010. doi:10.3390/ijerph17093010.

Shamasunder S, Holmes SM, Goronga T, Carrasco H, Katz E, et al. COVID-19 reveals weak health systems by design: why we must re-make global health in this historic moment. Global Public Health 2020. doi: https://doi.org/10.1080/17441692.2020.1760915

Sust PP, Solans O, Fajardo JC, Peralta MM, Rodenas P, et al. Turning the crisis into an opportunity: digital health strategies deployed during the COVID-19 outbreak. JMIR Public Health Surveill 2020; 6(2): e19106) doi: 10.2196/19106.

WHO. 2000. The world health report 2000: health systems: improving performance. Geneva, World Health Organization, 2000. Available at: http://www.who.int/whr/2000/en/whr00_en.pdf

WHO. 2010. Key components of a well-functioning health systems. Geneva, World Health Organization, 2010. Available at: https://www.who.int/healthsystems/EN_HSSkeycomponents.pdf?ua=1

WHO Regional Office Europe. Mental health and COVID-19. http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/novel-coronavirus-2019-ncov-technical-guidance-OLD/coronavirus-disease-covid-19-outbreak-technical-guidance-europe-OLD/mental-health-and-covid-19 (Accessed on 10th of May 2020).

Yao H, Chen JH, Xu YF. Patients with mental health disorders in the COVID-19 epidemic. Lancet 2020; 7(4): E21. doi: 10.1016/S2215-0366(2)30090-0.

Yang J, Zheng Y, Gou X, Pu K, Chen Z. et al. Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: a systematic review and meta-analysis. International Journal of Infectious Diseases 2020; 94: 91-95.

Zinatsa F, Engelbrecht M, van Rensburg AJ, Kigozi G. Voices from the frontline: barriers and strategies to improve tuberculosis infection control in primary health care facilities in South Africa. BMC Health Services Research 2018; 18: 269. https://doi.org/10.1186/s12913-018-3083-0.

CURRICULUM VITAE

PERSONAL DATA

Name	: Ari Natalia Probandari
Address	: Jalan Merapi Utara No. 10, Cengklik Rt 04/Rw 20, Nusukan, Solo 57135, Jawa Tengah, Indonesia
Email	: ari.probandari@staff.uns.ac.id
Sex	: Perempuan
Place/Date of Birth	: Surakarta/21 December 1975

EDUCATION

Ph.D, Umea University Sweden (2006-2010).
Master of Science in Public Health, Umea University Sweden (2003-2004).
Pendidikan Dokter, Universitas Gadjah Mada Yogyakarta (1993-2000).

POSITIONS

Head of Doctoral Program in Public Health, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2016-present).
Principal of Internal Quality Assurance, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2016-present)
Secretary of Master Program in Family Medicine, Universitas Sebelas Maret (2011-2013)
A guest lecturer at Public Health Sciences Postgraduate Program, Faculty of Medicine, Universitas Gadjah Mada, Indonesia (2005-present).

A guest lecture at Public Health Sciences Doctoral Program, Faculty of Public Health, Universitas Airlangga, Indonesia (2017-present)
Faculty member, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2005-present)
Temporary medical staff for the Ministry of Health Republic of Indonesia served for North Sulawesi Province (2000-2003)

CURRENT POSITIONS

Head of Doctoral Program in Public Health, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2016-present).
Faculty member, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2005-present)
Researcher at Centre for Health Policy and Management, Faculty of Medicine, Universitas Gadjah Mada Yogyakarta (2007-present)
Researcher at Centre for Tropical Medicine, Faculty of Medicine, Universitas Gadjah Mada Yogyakarta (2009-present)
Principal of Internal Quality Assurance, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia (2016-present)
A guest lecturer at Public Health Sciences Postgraduate Program, Faculty of Medicine, Universitas Gadjah Mada, Indonesia (2005-present).
A guest lecture at Public Health Sciences Doctoral Program, Faculty of Public Health, Universitas Airlangga, Indonesia (2017-present)

RESEARCH PROJECTS

1. INSIGHT: Model integrase skrining tuberkulosis, diabetes dan hipertensi pada pekerja (2021-2022). Kementerian Riset dan Teknologi/BRIN – Hibah World Class Research. Principal Investigator.

2. Indonesia tuberculosis patient cost survey (2020). World Health Organization. Co-investigator.
3. Malaria di cross-border Indonesia: analisis situasi, tantangan dan model kebijakan pengendalian (2020-2021). Kementerian Riset dan Teknologi/BRIN – Hibah World Class Research. Co-investigator.
4. Kajian dan pengembangan model implementasi penyelenggaraan pelayanan penyakit akibat kerja di era SJSN untuk upaya kesehatan kerja holistic dan terintegrasi (2019). Kementerian Kesehatan Republik Indonesia. Co-investigator.
5. Strengthening health systems- the role of drug shops (2019-2020). Alliance for Health Policy and Health Systems Research. Principal Investigator.
6. E-Nose TB: Inovasi electronic-nose untuk skrining Tuberkulosis di Indonesia (2019-2020). Funding: Kementerian Riset, Teknologi dan Pendidikan Tinggi – Hibah World Class Research (212,108,400 IDR). Co-investigator.
7. Designing implementation research for integration of tuberculosis, diabetes, and tobacco control programme: research link collaboration between India, Indonesia, and Sweden (2019-2020). Swedish Research Link (786,000 SEK). Co-investigator.
8. Scaling up Non-Communicable Diseases Interventions in South East Asia (SUNI-SEA). Consortium: University Medical Center Groningen (Netherlands), University of Groningen (Netherland), University of Trnava (Slovakia), Help Age International (UK), Help Age International UK (UK), University of Passau (Germany), University of Public Health Myanmar, Thai Nguyen University Vietnam, Health Strategy and Policy Institute Vietnam, Sebelas Maret University (Indonesia) (2018-2021). Funding: Horizon 2020 European Union (3.992.625 Euro). Co-Investigator.

9. Improving the dispensing of antibiotics by private drug sellers in Indonesia: a missing ingredient in the fight against antimicrobial resistance. Consortium: UNS, UGM, UNSW Sidney, London School of Hygiene and Tropical Medicine, The George Institute for Global Health (2018-2020). Funding: DFAT Australia (1.910.000 AUD). Principal Investigator.
10. TB-El: Aplikasi Elektronik untuk Mendukung Keberhasilan Penanganan Tuberkulosis Resisten Obat (2018-2019). Funding: Kementerian Riset Teknologi dan Pendidikan Tinggi. Co-Investigator.
11. Formative Research: Pencegahan dan Penanganan Asma di Tiga Provinsi di Indonesia (2018). Funding: HOPE Project, Astrazenica (340 million IDR). Principal Investigator.
12. Intensified Case Finding of Tuberculosis Cases: A qualitative component (2018). Funding: USAID TB Challenge KNCV Indonesia. Principal Investigator.
13. Exploring the readiness for the implementation of Direct Observed Treatment of Multidrug Resistant Tuberculosis in primary care setting (REd DOT Project) (2016). Funding: Alliance for Health Policy and Systems Research, WHO TDR, HRP. Principal Investigator.
14. Impact of Operational Research on Policy of TB control Program in Local Level (2014). Funding: USAID TB CARE. Principal Investigator.
15. Hospital DOTS Management System (2013-2015). Funding: Otsuka foundation. Principal Investigator.
16. Evidence for Policy Implementation: Equity and Tuberculosis in Indonesia (2012). Collaborative Research with Umea University Sweden. Co-Investigator.

17. Survey of Knowledge, Attitude and Practices on Tuberculosis Management among Private Medical Practitioners at 12 Provinces in Indoensia (2011). Co-Investigator.
18. The perception of stakeholders on the ongoing partnership: a qualitative study. Funding: Umea International School of Public Health Sweden (2008-2010). Principal Investigator.
19. Assessment of hospital DOTS implementation, TB-HIV collaboration and current MDR-TB management Phase II. Funding: WHO and DFID UK (2008). Co-Investigator.
20. Cost Effectiveness Analysis: Public-Private Mix DOTS in Indonesia. Funding: WHO and KNCV (2006–2008). Co-Investigator.
21. Assessment of hospital DOTS implementation, TB-HIV collaboration and current MDR-TB management Phase I (Java) Indonesia. Funding: WHO and DFID (UK) (2006-2007). Co-Investigator.

OTHER PROFESSIONAL INVOLVEMENTS

1. Consultant to facilitate the writing of National Strategy to Control TB in Indonesia 2020-2024 (2019-2020).
2. Team member to develop online course on Scientific Writing, in collaboration with Institute of Tropical Medicine Antwerp Belgium and Institute of Public Health India (2018-2019).
3. Consultant to facilitate the development of roadmap to TB elimination in Indonesia 2020-2030 (2019).
4. Consultant to deliver technical assistance to WHO Maldives for health research appraisal training (2017)
5. Principal of consultant team for the development of national action plan of Sexual Transmitted Diseases control 2015-2019, SubDit AIDS & PMS, Ministry of Health Republic of Indonesia (2014).

6. Principal of consultant team for the development of National Strategies for TB Control in Indonesia update 2010-2016. Funding: TB Subdirectorate MoH – TB Care I project USAID (2013).
7. Member of Global Health Research Network (2012-present)
8. Member of Tuberculosis Operation Research Working Group (2011-present).
9. Member of consultant team for the development of National Action Plan of Public Private Mix for Tuberculosis Control, SubDit Tuberculosis, Ministry of Health Republic of Indonesia (2011).

ACADEMIC SERVICES

1. Invited Editor for PLoS One (2017-sekarang)
2. Section editor for Global health Action (2015-sekarang)
3. Associate editor for BMC Health Services Research (2015-sekarang)
4. Peer reviewer for: BMC clinical pathology, BMC Health Services Research, BMC Public Health, Global Health Action, Human Resource for Health, International Journal of Equity in Health, Social Science and Medicine, Tropical Medicine and International Health
5. Grant reviewer Hibah Penelitian RISPRO LPDP (2016, 2019, 2020)
6. Grant reviewer Hibah Penelitian LPPM Universitas Sebelas Maret (2016-sekarang)
7. Grant reviewer Hibah Penelitian LPPM Universitas Jenderal Soedirman (2016)

PUBLICATIONS

Books / Book Chapters

1. Mahendradhata Y, **Probandari A**, Saleh-Danu S, Wilastonegoro NN, Sebong PH. 2019. Manajemen Program Kesehatan. UGM Press.

2. **Probandari A**, Sanjoto H, Mahanani MR, Mas'udah. 2019. Kesinambungan Pelayanan (Continuity of Care) Pengobatan Pasien Tuberkulosis di Balai Besar Kesehatan Paru Masyarakat Surakarta. UNS Press. ISBN 978-602-397-212-8.
3. Kementerian Kesehatan Republik Indonesia Direktorat Jenderal PP dan PL. 2012. Kumpulan Hasil Riset Operasional Tuberkulosis Indonesia Tahun 2010-2011 **(Editor)**. Ministry of Health, Republic of Indonesia. ISBN 978-602-235-074-8
4. **Probandari, A**. 2010. Revisiting the Choice: to Involve Hospitals in the Partnership for Tuberculosis Control in Indonesia. Dissertation. Sweden. Umea University.
5. Murti, B; Trisnantoro, L; **Probandari, A**; Maryanti, A.H; Harbianto, D; Hasanbasri, M; Wisnuputri T. 2006. *Perencanaan dan Penganggaran untuk Investasi Kesehatan di Tingkat Kabupaten dan Kota* (an essential manual to planning and budgeting of health investment at district and municipal levels). Gadjah Mada University Press. Indonesia
6. Utarini, A. **Probandari A**. 2006. Annual TB Report 2005: Indonesia. Ministry of Health, Republic of Indonesia

Reputable International Journals

1. Arifin B, **Probandari A**, Purba AKR, Perwitasari DA, Schuilling-Veninga CCM, Atthobari J, Krabbe PFM, Postma MJ. 'Diabetes is a gift from god' a qualitative study coping with diabetes distress by Indonesian outpatients. Qual Life Res. 2020;29(1):109–125. doi:10.1007/s11136-019-02299-2
2. Putra, I WGAE; Kurniawati, NMD; Dewi, NPEP; Suarjana, IK; Duana, IMK; Mulyawan, IKH; Riono, P; Alisjahbana, B; **Probandari, A**; Notobroto, HB; Wahyuni, CU. The implementation of early detection in Tuberculosis Contact Investigation to Improve Case Finding. Journal of Epidemiology and Global Health 2019; 9(3): 191-

197. DOI: https://doi.org/10.2991/jegh.k.190808.001; ISSN 2210-6006; eISSN 2210-6014

3. **Probandari, A**; Setyani, RA; Pamungkasari, EP; Widyaningsih, V; Demartoto, A. Improving knowledge, acceptance, and utilization of female condoms among sex workers through a peer education: a mixed methods study in Surakarta Municipality, Central Java Province, Indonesia. Health Care for Women International 2019;6: 1-19. DOI: 10.1080/07399332.2019.1639710.
4. Kumar, R; **Probandari, A;** Ojha, B; Bhattarai, AH, Subronto, YW. Implementation fidelity of provider-initiated HIV testing and counseling of tuberculosis patients under the National Tuberculosis Control Program in Kathmandu district of Nepal: implementation research. BMC Health Services Research (2019) 19:543.
5. **Probandari, A**; Sanjoto, H; Mahanani, MR; Azizatunnisa, L; Widayati, S. Being safe, feeling safe and stigmatizing attitude among primary health care staff in providing Multidrug-Resistant Tuberculosis care in Bantul District, Yogyakarta Province, Indonesia. Human Resources for Health 2019; 17: 16. DOI: https://doi.org/10.1186/s12960-019-0354-8
6. Thang, NT; **Probandari, A**; Ahmad, RA. Barriers to Engaging Communities in a Dengue Vector Control Program: An Implementation Research in an Urban Area in Hanoi City, Vietnam. The American Journal of Tropical Medicine and Hygiene 2019. DOI: https://doi.org/10.4269/ajtmh.18-0411
7. Nurhidayah, N; Syamsulhadi, M; Anantanyu, S; **Probandari, A**. Psychosocial Factors and Leisure Perception of the Elder in Two Districts Central Java Indonesia. Ageing International 2018. DOI: https://doi.org/10.1007/s12126-018-9339-5
8. Karki, P; Prabandari, YS; **Probandari, A**; Banjara, MR. Feasibility of school-based health education intervention to improve the

compliance to mass drug administration for lymphatic filariasis in Lalitpur district, Nepal: A mixed methods among students, teachers and health program manager. PLOS One 2018; 13(9):e0203547. DOI https://doi.org/10.1371/journal. pone.0203547

9. **Probandari, A**; Mahendradhata, Y; Widjanarko, B; Alisjahbana, B. Social multiplier effects: academics' and practitioners' perspective on the benefits of a tuberculosis operational research capacity building program in Indonesia. *Global Health Action* 2017; 10: 1. DOI 10.1080/16549716.2017.1381442.
10. **Probandari, A**; Arcita A; Kothijah, K; Pamungkasari, EP. Barriers to utilization of postnatal care at village level in Klaten district, Central Java Province, Indonesia. BMC Health Services Research 2017; 17: 541.
11. **Probandari, A**; Widjanarko, B; Mahendradhata, Y; Sanjoto, H; Cerisha, A; Nungky, S; Riono, P; Simon, S; Farid, MN; Giriputra, S; Putra, AE; Burhan, E; Wahyuni CU; Mustikawati, D; Widianingrum, C; Tiemersma, EW; Alisjahbana, B. The path to impact of operational research on tuberculosis control policies and practices in Indonesia. *Global Health Action* 2016; 9: 29866 DOI http://dx.doi.org/10.3402/gha.v9.29866.
12. Mahendradhata, Y; Lestari, T; **Probandari, A**; Indriarini, LE; Burhan, E; Mustikawati D; Utarini, A. How do private general practitioners manage tuberculosis cases? A survey in eight cities in Indonesia. BMC Research Notes 2015; *8*:564 DOI 10.1186/s13104-015-1560-7.
13. Mahendradhata, Y; **Probandari, A**; Riono, P; Widjanarko, B; Mustikawati, D; Alisjahbana, B. Embedding operational research into national disease control programme: lessons from 10 years of experience in Indonesia. *Glob Health Action* 2014; 7: 25412 - http://dx.doi.org/10.3402/gha.v7.25412.

14. Putra, IW; Utami, NW; Suarjana, IK; Duana, IM; Astiti, CI; Putra IW; **Probandari, A;** Tiemersma, EW; Wahyuni, CU. Factors associated to referral of tuberculosis suspects by private practitioners to community health centres in Bali Province, Indonesia. *BMC Health Services Research* 2013; 13: 445 doi:10.1186/1472-6963-13-445.
15. Lestari, T; **Probandari, A**; Hurtig, AK; Utarini, A. High caseload of childhood tuberculosis in hospitals on Java Island, Indonesia: a cross sectional study. *BMC Public Health* 2011. 11:784.
16. **Probandari, A**; Utarini, A; Lindholm, L. Hurtig, AK. Life of a partnership: The process of collaboration between the National Tuberculosis Program and the hospitals in Yogyakarta, Indonesia. *Social Science & Medicine* 2011; 73(9):1386-94. doi: 10.1016/j.socscimed.2011.08.017. Epub 2011 Sep 10.
17. Mahendradhata, Y; **Probandari, A**; Ahmad, RA; Utarini, A; Trisnantoro, L; Lindholm, L; van der Werf, MJ; Kimerling, M; Boelaert, M; Jhons, B; Van der Stuyft, P. The Incremental Cost-Effectiveness of Engaging Private Practitioners to Refer Tuberculosis Suspects to DOTS Services in Jogjakarta, Indonesia. *American Journal of Tropical Medicine and Hygiene* 2010; 82(6): 1131-1139.
18. **Probandari, A**; Lindholm, L; Stenlund, H; Utarini, A; Hurtig, Anna-Karin. Missed opportunity for standardized diagnosis and treatment among adult Tuberculosis patients in hospitals involved in Public-Private Mix for Directly Observed Treatment Short-Course strategy in Indonesia: a cross-sectional study. *BMC Health Services Research* 2010; 10:113 doi:10.1186/1472-6963-10-113.
19. Riyarto, S; Hidayat, B; Johns, B; **Probandari, A**; Mahendradhata, Y; Utarini, A; Trisnantoro, L; Flessenkaemper, S. The financial burden of ARV care, including antiretroviral therapy, on patients in three sites in Indonesia. *Health Policy and Planning 2010; 1-11* doi:10.1093/heapol/czq004.

20. Johns, B; **Probandari, A**; Mahendradhata, Y; Ahmad, RA. An analysis of the cost and treatment success of collaborative arrangements among public and private providers for tuberculosis control in Indonesia. *Health Policy* 2009; 93:214-224
21. **Probandari, A**; Utarini, A; Hurtig, AK. Achieving quality in the directly observed treatment short-course (DOTS) strategy implementation process: a challenge for hospital public-private mix in Indonesia. *Global Health Action* 2008. DOI: 10.3402/gha.v1i0.1831.

National Journals (the last 5 years), including:

1. Ramadhan S, Subronto YW, **Probandari A**. Identifikasi faktor yang mempengaruhi keberhasilan pengobatan penderita tuberkulosis di Kabupaten Bima 2014-2016. Media Litbangkes 2019; 29(2): 171-176.
2. Aini Z, Pamungkasari EP, **Probandari A**. Role of doctors at health centers in applying principles of family medicine to prevent diphteria in Banda Aceh. Indonesian Journal of Medicine and Health 2019; 10(3): 229-238.
3. Puspitaningrum RA, **Probandari A**, Pamungkasari EP, Ardyanto TD, Fitriana EN. Achievement of universal health coverage in Surakarta city: policy analysis. Indonesian Journal of Medicine and Health 2019; 10(2): 149-161.
4. Sumardiyono, Wijayanti R, Hartono, **Probandari A**. The correlation between hearing loss and the quality of life of workers exposed to the noise in the textile industry. Jurnal Kesehatan Masyarakat 2019; 15(1): 81-88.
5. Setiawan KH, **Probandari A**, Pamungkasari EP, Tamtomo DG. Development of rabies eradication package, a family-based health promotion media to prevent rabies in Buleleng, Bali, Indonesia. Bali Medical Journal 2019; 8(2): 546-550.

6. Fitriana EN, **Probandari A**, Pamungkasari EP, Ardyanto TD, Puspitaningrum RA. The importance of socialization in achieving universal health coverage: case study of Jaminan Kesehatan Nasional (JKN) implementation in two different regions in Central Java province. Indonesian Journal of Medicine and Health 2019; 10 (2): 110-120.
7. Hanifa A, **Probandari A**, Pamungkasari EP. Effect of comdom use on sexually transmitted infection in female sex workers in Tulungagung District, Indoensia. Kesmas: National Public Health Journal 2019; 1393): 150-156.
8. Reviono, Ramadhiana Y, **Probandari A**, Setianingsih W. Factors associated with success rate for tuberculosis treatmentin hospital. Journal of Epidemiology and Public Health 2019; 4(4): 283-295.
9. Renowening Y, Suradi, **Probandari A**. Correlation of smoking habits, physical activities, and fat intake with cognitive ability in Indonesian elderly. International Journal of Nutrition Sciences 2019; 4(4): 186-191.
10. Ramadhanty Z, Yarsa KY, **Probandari A**. Construct validity and reliability of Indonesia version of RAND SF-36 quality of life questionnaires in breast cancer patients. Indonesian Journal of Cancer 2019; 13(2): 55-58.
11. Damayanti S, Sulisyowati S, **Probandari A**. Maternal characteristics and the effects of early and late-onset types of preeclampsia on maternal and perinatal complications. Indonesian Journal of Medicine 2019; 4(4): 329-338.
12. Indrawati FL, Demartoto A, **Probandari A**. Perceived Benefit of Condom Use Domination on the Perceived Benefit of Sexually Transmitted Infection Screening on Queer in Yogyakarta. Journal of Health promotion and Behavior (2018, 3(2): 126-129.

13. Sumardiyono, Hartono, **Probandari A**, Setyono P. Pengaruh bising dan masa kerja terhadap nilai ambang pendengaran pekerja industry tekstil. Journal of Industrial Hygiene and Occupational Health 2018; 2(2): 122-131.
14. Sumardiyono, Hartono, **Probandari A**, Setyono P. The effect of noise and work period to hearing threshold value in textile industry workers. Journal of Industrial Hygiene and Occupational Health 2018; 2(2):122-131.
15. Dewi DH, **Probandari A**, Indarto D. Fasting blood glucose levels in adult women with type 2 diabetes mellitus and its associated factors. Jurnal Keperawatan Soedirman 2018; 13(3): 107-113.
16. Hermasari BK, **Probandari A**, Afifah ZN. Assesing midwifery and medical student's interprofessional learning: the use of portofolio. Journal of Education and Learning 2018; 12(4): 581-588.
17. Pamungkasari EP, **Probandari A**, Randita ABT, Parwatiningsih SA. Students' and academic staffs' perspective on interprofessional education model. Jurnal Pendidikan Indonesia 2018; 7(3): 197-205.
18. Sumardiyono, Hartono, **Probandari A**, Setyono P. The association between risk factors and blood pressure in the textile industry workers. Global Medical & Health Communication 2017; 5(3): 228-235.
19. Widyasrini ER, **Probandari A**, Reviono**.** Factors affecting the success of multidrug resistance tuberculosis (MDR-TB) treatment in residential Surakarta. Journal of Epidemiology and Public Health 2017; 2(1): 45-57 https://doi.org/10.26911/-jepublichealth.2017.02.01.05
20. Kristiani SYM, Kusnanto H, **Probandari A**. Evaluasi pemanfaatan early warning alert and response system di Kabupaten Boyolali. Journal of Information Systems for Public Health 2016; 1(1): 55-63.

Conference Papers (the last 5 years), including:

1. Sumardiyono, **Probandari A**, Hartono, Wijayanti R. A path analysis: study of correlation between noise intensity and quality of life of workers in textile industry. Journal of Physics: Conference Series 1424 (2019) 012045 IOP Publishing doi:10.1088/1742-6596/1424/1/012045
2. Asfawi A, **Probandari A**, Setyono P, Hartono. Economic valuation of horiculture organic farming in Getasan, Semarang Regency. The IOP Conf. Series: Earth and Environmental Science 328 (2019) 012029 IOP Publishing doi:10.1088/1755-1315/328/1/012029
3. Poerwati S, Sutrisno J, **Probandari A**, Ramelan AH. Uluk-uluk (ipomea carnea) as a water antibacterial with approach of dynamic model. AIP Conference Proceedings **2049**, 020067 (2018); https://doi.org/10.1063/1.5082472
4. Nurhidayah N, Syamsulhadi M, Anantanyu S, **Probandari A**. The associations of education level and health status with leisure participation among the elderly. International Conference of Public Health 2018. DOI: 10.26911/theicph.2018.02.37
5. Sumardiyono, Hartono, **Probandari A**, Setyono P. The effect of continuous noise on blood cortisol level in textile industry workers. The 4th International Conference on Public Health 2018, August 2018. DOI: 10.26911/theicph.2018.01.22
6. Eka Putra, IWGA; Astuti, PAS, Duana IMK, Suarjana IK, Mulyawan KH, Kurniasari NMD, Ekaputra IBG, **Probandari A**, Wahyuni CU. Obstacles and solutions for tuberculosis screening among people with diabetes mellitus in Denpasar, Bali, Indonesia: a need assessment. The 2nd International Symposium of Public Health (ISOPH), 2017.

7. Eka Putra, IWGA; Astuti, PAS, Duana IMK, Suarjana IK, Mulyawan KH, Kurniasari NMD, Ekaputra IBG, **Probandari A,** Wahyuni CU. The association between tuberculosis stigma and the implementation of diagnosis procedure on tuberculosis screening program in Denpasar, Bali, Indonesia. The 3rd International Conference on Public Health (ICOPH), Kuala Lumpur, 2017.
8. Noviani AN, Indarto D, **Probandari A**. High prevalence anemia in female adolescents with low intake of vitamins and minerals. Proceedings of the 2nd Public Health International Conference (PHICo 2017). https://doi.org/10.2991/phico-17.2018.24
9. Sumardiyono, Hartono, **Probandari A**, Setyono P. Analysis of risk factors increase blood pressure in the textile industry workers. Prosiding Seminar Nasional dan Internasional Universitas Muhammadiyah Semarang, 2017.
10. Sutaryono, Hartono, **Probandari A**, Setyono P, Budiastuti S. Association between exposure to environmental tobacco smoke and the risk of uncontrolled asthma in children. The 2nd International Conference on Public Health 2017, September 2017. DOI: 10.26911/theicph.2017.034
11. **Probandari, A**; Mahendradhata, Y; Andayani, PE; Utarini A. Barriers of research in university: a case study in Faculty of Medicine Universitas Gadjah Mada Yogyakarta. iNORMS conference, Melbourne, 2016.
12. Utarini, A; **Probandari, A**. Innovation in Disease Prevention and Wellness Program in Indonesian Health System as an Important Factor to Approach SDGs. Seminar on Wellness and Nutrition, Yogyakarta, 2016.
13. Lestari T, **Probandari, A**; Sanjoto, H; Djasri, H; Iswanto; Mahendradhata, Y; Utarini, A. Audit and improvement of the clinical pathway for adult pulmonary tuberculosis in Bethesda

Hospital, Yogyakarta, Indonesia. The 46th Union World Conference on Lung Health. Capetown, 2015.
14. **Probandari, A**; Mahendradhata, Y; Djasri, H; Lestari, T; Andayani, PE; Hendra, Y; Wilastonegoro N, Sanjoto H, Utarini A. Patients' perceived importance and performance of TB-HIV services in five hospitals in Indonesia. 9th European Congress on Tropical Medicine and International Health, Basel, 2015.
15. **Probandari A**, Mahendradhata Y, Djasri D, Lestari T, Andayani PE, Hendra, Y; Wilastonegoro N, Sanjoto H, Utarini A. Challenges for patient-centred tuberculosis care in five hospitals in Indonesia. Health Systems and Policy Research Symposium, Cape Town, 2014.
16. **Probandari A**, Sanjoto H, Widjanarko B, Alisjahbana B. Evidence of community contribution to TB control in five provinces in Indonesia. National TB Parade, Jakarta, 2015.
17. Widyaningsih V, **Probandari A**, Pamungkasari EP, Prasetyawati AE, Sanjoto H, Masudah. Identifying gaps between patients' perceived performance and expectation of Tuberculosis-HIV education: a cross sectional study in BBKPM Surakarta., National TB Parade, Jakarta, 2015.

Copyrights

Course/Conference/Seminar/Workshop

1. Workshop of Qualitative Research, LOTUS CARE, Yogyakarta: facilitator (March 16, 2019)
2. Clinic of International Journal Publication, Universitas Ahmad Dahlan, Yogyakarta: facilitator (January 21, 2019)
3. Workshop on the Development of Scientific Writing Course, ITM Belgium, Antwerp: participant (2018)
4. KAVLI Meeting, Ambon: participant (2017)
5. Training on Good Health Research Practice, WHO Tropical Disease Research, Yogyakarta: participant (27-30 July 2015).
6. Training on Good Clinical Research Practice, Badan POM RI, Surakarta: participant (5-6 March 2015).
7. National TB Parade, Jakarta: oral presenter (11th-12th March 2015).
8. The 3rd Global Symposium on Health Systems Research, Capetown: poster presenter (30th September – 3rd October 2014)
9. Indonesian Healthcare Quality Network Forum X 2014, Surakarta: oral presenter (30th July – 1st August 2014).
10. Short course on TB Management, London: participants (13-19 January 2014).
11. International Union Against Tuberculosis and Lung Diseases Symposium, Malaysia: poster presenter (13-18 November 2012).
12. Evidence for Policy Implementation (EPI-4) project: Project Meeting, China: participant (28-31 October 2012).
13. Short course on An Introduction to Multilevel Analysis: An Epidemiological Perspective, Umea University, Sweden: participant (2012)
14. Workshop on TB Operations Research Proposal Development, Tuberculosis Operations Research Group Indonesia: facilitator (21-24 May 2012)

15. Workshop on REACHOUT Project, Liverpool School of Tropical Medicine, UK: participant (23-27 January 2012).
16. Workshop on Patient Centeredness Approach Package TBCARE USAID, Phnom Penh Cambodia: participant (10-14 October 2011)
17. Workshop on Proposal of Tuberculosis Operational Research KNCV, Surakarta, Jawa Tengah: facilitator (15-19 August 2011).
18. Workshop on publication writing, Tuberculosis Operations Research Group Indonesia: facilitator (8-13 August 2011).
19. The International Seminar on Evidence based Programmes for Reproductive Health and HIV Interventions, Bali: oral presenter (2011)
20. The Fifth Postgraduate Forum on Health System and Policy Research, Yogyakarta: oral presenter (2011).
21. The National Congress of Tuberculosis, Jakarta: oral presenter (2011).
22. The first international symposium on health system and policy research, Montreux, Switzerland: participant (2010).
23. Short course on Global Health, University of Bergen, Norway: participant (2010).
24. Course of Public-Private Mix for Tuberculosis Control TBCTA Regional Training Centre (Re TRAC) Asia, Faculty of Medicine Universitas Gadjah Mada Yogyakarta, Indonesia: facilitator (2009).
25. Short course on Quality Management in International Health, University of Heidelberg, Germany: participant (2008).
26. International Workshop of Hospital DOTS Linkage, di Bali – Indonesia: facilitator (2007).

27. Short course on Ethics in Research, Umea University, Sweden: participant (2007).
28. Short course on Health System Research, KIT Royal Tropical Institute Amsterdam, the Netherland: participant (2007).

PEER REVIEW

International Journals

1. BMC Health Services Research: 1 article (2011), 1 article (2014), 3 articles (2015), 8 article (2016), 17 article (2017), 16 article (2018), 5 article (2019).
2. BMC Clinical Pathology: 1 article (2015)
3. BMC Public Health: 3 articles (2011)
4. Global Health Action: 1 article (2011), 2 articles (2012), 2 articles (2013), 3 article (2014), 2 article (2015), 4 article (2017), 6 article (2018), 1 article (2019)
5. Human Resources for Health: 1 article (2015).
6. International Journal on Equity in Health: 1 article (2011).
7. Social Science and Medicine: 1 article (2013).
8. Tropical Medicine and International Health: 1 article (2012)
9. PLoS One: 1 article (2017)
10. International Health: 1 article (2018)

National Journals

1. Jurnal Manajemen Pelayanan Kesehatan: 2 articles (2012), 1 article (2013), 1 article (2014), 3 articles (2015), 1 article (2018).
2. Berita Kesehatan Masyarakat: 3 articles (2018), 1 article (2019)
3. Berkala Ilmiah Kedokteran Duta Wacana: 3 articles (2016-2018)
4. Indonesian Journal of Integrated Health Sciences: 1 article (2018)
5. Jurnal Kebijakan Kesehatan Indonesia: 1 article (2018)
6. Journal of Public Health for Tropical and Coastal Region: 1 article (2017).

AWARDS AND FELLOWSHIPS

1. Third Prize for Senior Researcher Category – Tropmed Award 2019, Centre for Tropical Medicine, Universitas Gadjah Mada, Indonesia (2019)
2. Fellowships for the workshop of scientific writing course development, Institute for Tropical Medicine Antwerp, Belgium (2018)
3. Fellowship for IR training at Khong Kaen University Thailand, WHO TDR (2018).
4. Fellowship for TropEd meeting, WHO TDR (2018).
5. Fellowship for capacity building of systematic review writing, UNSW Seed funding (2018).
6. Fellowship for KAVLI meeting, USAID (2017).
7. Fellowship for participating Public speaking and media skills training for TB advocates and researchers, ACTION global health advocacy partnership USA (2017).
8. Second Best Research Paper on Tuberculosis Social Research, Ministry of Health, Indonesia (2017)
9. Fellowship for participating Regional training for health research, WHO TDR (2016)
10. Fellowship for participating 2016 Indonesian-American Kavli Frontiers of Science Symposium, Knowledge Sector Initiative (2016)
11. Fellowship for participating Implementation Research in Public Health for Low- and Middle-Income Countries (John Hopkins School of Public Health, Baltimore, USA), WHO TDR (2016)
12. Fellowship for participating Participatory Teaching Techniques with A focus of Adult Teaching (Heidelberg University, Germany), WHO TDR (2016)
13. Fellowship for short course on TB research methods (McGill University Montreal, Canada), WHO TDR (2016).

14. Achievement award for Academic Staff – 3rd Place, Universitas Sebelas Maret, Surakarta, Indonesia (2016).
15. Fellowship for participating Regional Course on Good Health Research Practice (Yogyakarta, Indonesia), WHO TDR (2015).
16. Fellowship to participate in a workshop to develop a short training course on principles on implementation research at University of Ghana, WHO TDR (2015).
17. Achievement award for Academic Staff – 2nd Place, Universitas Sebelas Maret, Surakarta, Indonesia (2013).
18. Global Health Research Scholarship for Ph.D program at Umea International School of Public Health, Sweden (2007-2010).
19. Vasterbotten County Council Scholarship for Ph.D program at Umea International School of Public Health, Sweden (2006-2007).
20. STINT Scholarship for Master Program at Umea University, Sweden (2003-2004).

Produce by:
Sebelas Maret University Press (UNS PRESS), Mei 2020
Publisher is not responsible for contents

COVID-19 PANDEMIC AND INDONESIAN HEALTH SYSTEMS RESILIENCE: Lessons Learned and Ways Forward

UNS - SOLO

universitas sebelas maret

www.uns.ac.id