Bridging Academia and Communities: Strengthening One Health Workforce Capacity for Animal Disease Surveillance in Indonesia

WOAH Epidemic Intelligence Webinar: Event-Based Surveillance for Animal Health in the Asia-Pacific

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World Organisation for Animal Health

Animal Health and Zoonotic Disease Threats in Indonesia: The Need for Early Detection

A diverse risk landscape

- Indonesia faces significant risks of zoonotic and emerging infectious diseases due to its rich biodiversity, population density, land-use changes, and close interactions among wildlife, livestock, and humans (https://www.fao.org)

- Recent Animal Disease Outbreaks in Indonesia: FMD, LSD, and ASF



Map source: Beef Central (2023), https://www.beefcentral.com/live-export/se-asia-report-november-2023/



This complex risk landscape highlights the need for integrated One Health surveillance, community engagement, and early detection of emerging disease threats

Universities, together with their professional and community networks, can strengthen animal disease surveillance through One Health initiatives that build the capacity of veterinary professionals, students, and local communities

Bridging Academia and Communities: INDOHUN and One Health Collaboration Centers' Contributions to Developing Indonesia's Future One Health Workforce

indohun
INDONESIA ONE HEALTH UNIVERSITY NETWORK

Indonesia One Health University Network (INDOHUN) is an academic network that unites universities and researchers to implement the One Health approach in Indonesia (established in 2012)

INDOHUN brings together 34 faculties across 20 member universities, eight One Health Collaborating Centers (OHCCs), and 12 laboratory network members, fostering collaboration among academics, researchers, professionals, stakeholders, and communities to address regional and global health challenges through a One Health approach.

One Health Collaborating Center (**OHCC**): University-based center coordinated by INDOHUN to advance the One Health approach through education, research, capacity building, and multidisciplinary collaboration.

Established University-based One Health Collaborating Centers in Indonesia:

1. Universitas Syiah Kuala (CENTROVETS-OHCC USK), Banda Aceh
2. IPB University (GHA-OHCC IPB), Bogor
3. Gadjah Mada University (OHCC UGM), Yogyakarta
4. Airlangga University (ADPRC-OHCC UNAIR), Surabaya, East Java
5. Udayana University (Udayana OHCC), Denpasar, Bali
6. Mulawarman University (OHCC UNMUL), Samarinda, East Kalimantan
7. Hasanuddin University (OHCC UNHAS), Makassar, South Sulawesi
8. Cenderawasih University (OHCC UNCEN), Jayapura, Papua



Preparing the Future One Health Workforce: The One Health Student Club (OHSC) Program

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INDONESIA ONE HEALTH UNIVERSITY NETWORK

- The One Health Student Club (OHSC) brings together students from diverse academic disciplines to promote interdisciplinary learning, collaboration, and practical application of the One Health approach (30 students per batch/year).
- Aim: To foster awareness and understanding of multidisciplinary collaboration in addressing emerging health threats through the One Health approach
- Supported by USAID through the One Health Workforce–Next Generation (OHW-NG) Program
- Implemented and supervised by INDOHUN through university-based OHCCs



CENTROVETS-OHCC USK



GHIA OHCC
Global Health Agromaritime and One Health Collaborating Center IPB University



OHCC
Udayana One Health Collaborating Center



Preparing the Future One Health Workforce: The One Health Student Club (OHSC) Program

Student Recruitment:

Interested students must register and participate in a selection process before joining the OHSC program



CENTROVETS-OHCC USK



Multidisciplinary Student Participants (academic disciplines: veterinary medicine, human health, environmental, education, engineering, agriculture, and social and political sciences, etc.)

Training Scope and Learning Methods:

1. Introduction to the One Health Approach
2. One Health Leadership Development
3. One Health Communication Skills
4. Case-Based Learning and Group Discussions
5. Small-Scale Project Development
6. Institutional Visits and Field Learning



CENTROVETS-OHCC USK





Preparing the Future One Health Workforce: The One Health Student Club (OHSC) Program



Group and Field Activities:

1. Small-Scale Project Development
2. Institutional Visits and Field Learning





CENTROVETS-OHCC USK

Student Field Visit: Learning HACCP Implementation and Biosecurity Practices at a Local Fish Processing Facility



OHSC Small-Scale Project: Promoting Food Safety and Salmonella Prevention among Primary School Teachers and Students





"Some primary school students participating in OHSC educational activities belong to vulnerable populations, as they live in communities located within or near waste collection and processing sites, where they may face increased environmental and public health risks" (Batch 5/2024)



Preparing the Future One Health Workforce: The One Health Student Club (OHSC) Program

Assessment of Training Output:

Pretest Mahasiswa Batch 1 (Jawaban) (4) .XLSX

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	A	B	C
1	Timestamp	Email Address	Score
2		abdulhalim@mhs.usk.ac.i	40 / 100
3		adliansyahr@gmail.com	50 / 100
4		afrilladwiputriyolandaridwa	30 / 100
5		ambunsuri2001@gmail.co	40 / 100
6		andrianputra226@gmail.c	40 / 100
7		annamardhatillahh@gmai	20 / 100
8		annisaharun03@gmail.co	70 / 100
9		azkaadamghifari07@gma	40 / 100
10		bungalaila0918@gmail.co	50 / 100
11		chairunnisasusniza@gma	40 / 100
12		daracut1707@gmail.com	40 / 100
13		darajatulfirdha100295@g	10 / 100
14		debbyyolandatarigan@gn	30 / 100
15		dessiastika.xii.ipa.1@gma	50 / 100
16		dessiastika.xii.ipa.1@gma	100 / 100
17		dianmulfrist98.dm@gmail	50 / 100
18		dimasriansya2909@gmai	50 / 100
19		dinifitrisiaa11@gmail.com	70 / 100
20		disniania@gmail.com	40 / 100
21		dwiatmajanischaya@gma	20 / 100
22		dwiseptianirahayu234@g	20 / 100
23		elsa.oktaviani2002@gma	10 / 100

Postest Mahasiswa Batch 1 (Jawaban) (2) .XLSX

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	A	B	C
1	Timestamp	Email Address	Score
2		annisaharun03@gmail.co	100 / 100
3		najwazatti2@gmail.com	100 / 100
4		ablighdinidirayati@gmail.	100 / 100
5		handasabila20@gmail.co	100 / 100
6		banysarahmasari26@gma	100 / 100
7		putrifarrayulia@gmail.com	100 / 100
8		ajridwitama8@gmail.com	100 / 100
9		nutiara.santri24@gmail.c	100 / 100
10		bungalaila0918@gmail.co	100 / 100
11		srioktarini94@gmail.com	100 / 100
12		mulya109@gmail.com	100 / 100
13		viskamainacha@gmail.co	100 / 100
14		hadhiradewantara09@gm	100 / 100
15		olganandaoctv1@gmail.c	100 / 100
16		hurulaidabakhtiar@gmail.	100 / 100
17		sabilafauzia02@gmail.co	100 / 100
18		itifaftania242@gmail.com	100 / 100
19		irdafadhila2002@gmail.c	100 / 100
20		cut.ima2002@gmail.com	100 / 100
21		chairunnisasusniza@gma	100 / 100
22		izkitamayasaricapah30@	100 / 100
23		zuliaindriani03@gmail.co	100 / 100

National Participation in the OHSC Program:
Students from diverse academic disciplines participated in five batches of the One Health Student Club (OHSC) program, conducted by university-based One Health Collaborating Centers (OHCCs) across Indonesia.

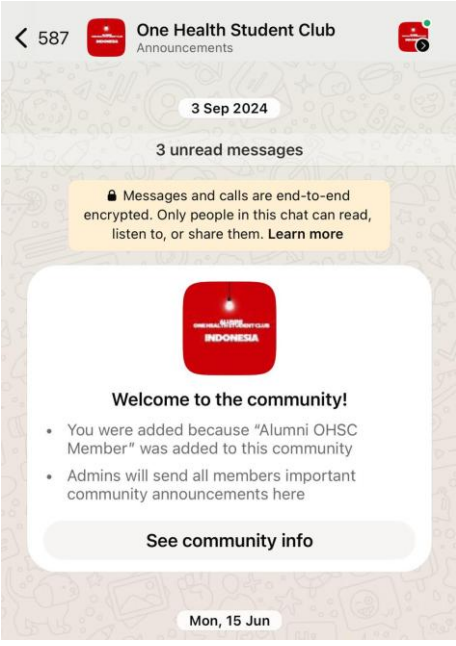
Post-Training Follow-Up



Strengthening Alumni Networks:
"Established an OHSC Alumni WhatsApp group to maintain professional connections, facilitate knowledge sharing, and promote continued collaboration among participants"



Appreciation for the completion of the One Health Workforce Next Generation (OHW-NG) project by INDOHUN from The Ministry of Education, Culture, Research, and Technology, officially in October 2024.



Strengthening Animal Health Surveillance Capacity through Academic–Professional Partnerships in Indonesia

The Indonesian Veterinary Schools Association (AFKHI) Program

The Indonesian Veterinary Schools Association (AFKHI, or *Asosiasi Fakultas Kedokteran Hewan Indonesia*) is an organization dedicated to developing and improving the quality of veterinary medical education, research, and standards in Indonesia

INDONESIA AUSTRALIA RED MEAT & CATTLE PARTNERSHIP

Project: Enhancing Frontline Veterinarians' Capacity for Animal Disease Surveillance in Indonesia



Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

- This project is organized by AFKHI, Supported by the Indonesia-Australia Red Meat and Cattle Partnership Program (IARMCP).
- Conducted by **11 Universities** (Veterinary Faculties and Study Programs) across Indonesia (2023-2024).
- Aim: To strengthen the capacity of frontline animal health workers and farmers for effective livestock disease prevention, outbreak preparedness, and response.
- Key Program Activities: frontline Animal Health Workforce Development: Providing professional training to strengthen the technical competencies of frontline animal health workers in targeted areas.

Enhancing Frontline Veterinarians' Capacity for Animal Disease Surveillance in Indonesia

The program began with the Training of 19 Veterinary Faculty Members as Facilitators, Representing Veterinary Schools Across Indonesia



Supported by:

Kementerian Pendidikan Tinggi, Sains, dan Teknologi

Kementerian Pertanian Republik Indonesia

AFKHI

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In Collaboration with Provincial/Local Livestock and Animal Health Authorities

Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

Training Modules:

Modules	Topics
1	Population Health and Veterinary Epidemiology: a. Introduction to Population Health and Veterinary Epidemiology b. Epidemiological Triad: Host–Agent–Environment Interactions c. Application of the One Health Approach in Animal Disease Investigation d. Epidemiological Data Management, Analysis, and Reporting
2	Animal Disease Outbreak Investigation: a. Fundamentals of Animal Disease Outbreak Investigation b. Systematic Steps in Outbreak Investigation c. Participatory Epidemiology and Community-Based Disease Surveillance d. Field Biosecurity and Biosafety Measures during Outbreak Investigations e. Field Specimen Collection, Handling, Preservation, and Transportation f. Practical Field Exercises, Epidemiological Data Collection, and Investigation Reporting
3	Epidemiological Reporting and Risk Communication: a. Epidemiological Data Analysis, Visualization, and Presentation b. Risk Communication and Community Engagement during Disease Outbreak Investigations c. Disease Event Notification, Reporting Pathways, and Information Sharing

Enhancing Frontline Veterinarians' Capacity for Animal Disease Surveillance in Indonesia

Training Methods and Learning Activities:

1. Interactive Classroom Discussions
2. Simulation Exercises and Role-Playing
3. Practical of Field Investigation
4. Group/Individual Group Presentations and Discussion of Field Investigation Results
5. Report Writing





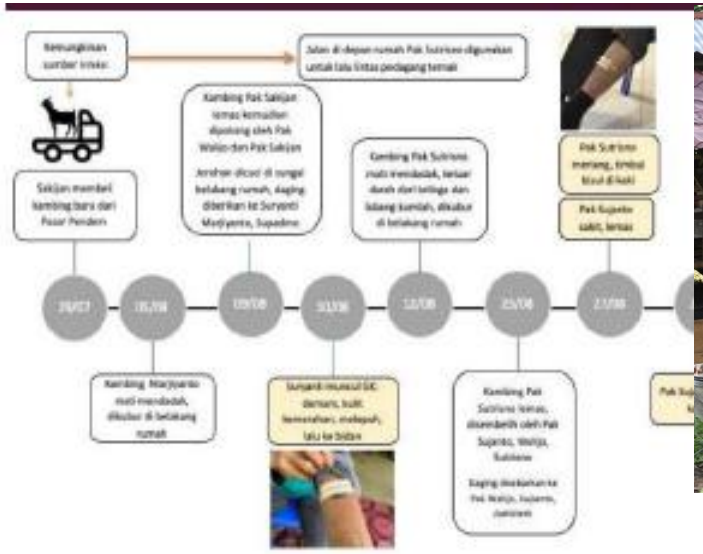
Practical of Field Investigation:
Field-Based Outbreak Investigation Training: Learning from Historical Animal Disease Outbreaks

Examples:
1. Aceh and North Sumatera: FMD
2. Yogyakarta: Anthrax



Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

Practical Training in Outbreak Investigation and Field Reporting:





LAPORAN PENYIDIKAN PENYAKIT HEWAN

(INVESTIGASI OUTBREAK)

NO:

1. Laporan Penyidikan Kematian Kematian Kambing di Kecamatan Girimulyo, Kabupaten Kulon Progo, Provinsi Daerah Istimewa Yogyakarta.

2. Pendahuluan

Pada tanggal 04 September 2023, Kepala Bidang Kesehatan Hewan Dinas Pertanian dan Pangan Kabupaten Kulon Progo drh. Drajat Purbadi menerima laporan kematian secara mendadak beberapa ekor ternak di Dukuh Patihombo, Desa Purwosari, Kecamatan Girimulyo, Kabupaten Kulon Progo. Seiring dengan kejadian kematian ternak tersebut, juga dilaporkan beberapa penduduk terkena penyakit. Secara geografis, Desa Purwosari terletak pada ketinggian 800 mdpl, dan merupakan sentra pembibitan kambing Peranakan Etawa (PE), dengan populasi kambing 350 ekor. Mayoritas penduduk bertani, berkebun dan beternak. Tim dari Asosiasi Fakultas Kedokteran Hewan Indonesia (AFKHI) melakukan investigasi outbreak pada tanggal 05 September 2023 dengan tujuan: 1) mengidentifikasi sumber infeksi terjadinya wabah, 2) mengetahui gambaran kejadian penyakit, 3) mengetahui faktor risiko yang

V. UKURAN KEJADIAN PENYAKIT

No.	Responden	Populasi Awal	Sakit	Mati	Populasi Akhir	Mortalitas	Morbiditas
1	Suryanti	9	0	1	8	11%	0%
2	Walijo	6	0	0	6	0%	0%
3	Sakijan	7	1	0	6	0%	14%
4	Jeminem	3	0	0	3	0%	0%
5	Marjiyanto	9	1	1	7	11%	11%
6	Supadmo	12	0	0	12	0%	0%
7	Sutinah	7	0	0	7	0%	0%
8	Sutrisno	7	1	1	5	14%	14%
Jumlah		60	3	3	54	5%	5%





Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

From Class Room to Field: Preparing Veterinary Students for Animal Disease Surveillance and Outbreak Response in Indonesia

- The program, Preparing Veterinary Students for Animal Disease Surveillance and Outbreak Response in Indonesia, is organized by AFKHI, supported by the Indonesia-Australia Red Meat and Cattle Partnership Program (IARMCP) (2023-2024).
- Conducted by **11 Universities** (Veterinary Faculties and Study Programs) across Indonesia (2023-2024).
- Aim: to strengthen veterinary students' competencies in animal disease surveillance, outbreak investigation, preparedness, and response.
- Key activities: Veterinary Student Capacity Building: Enhancing the knowledge and practical skills of veterinary students in animal disease surveillance, outbreak investigation, and response.

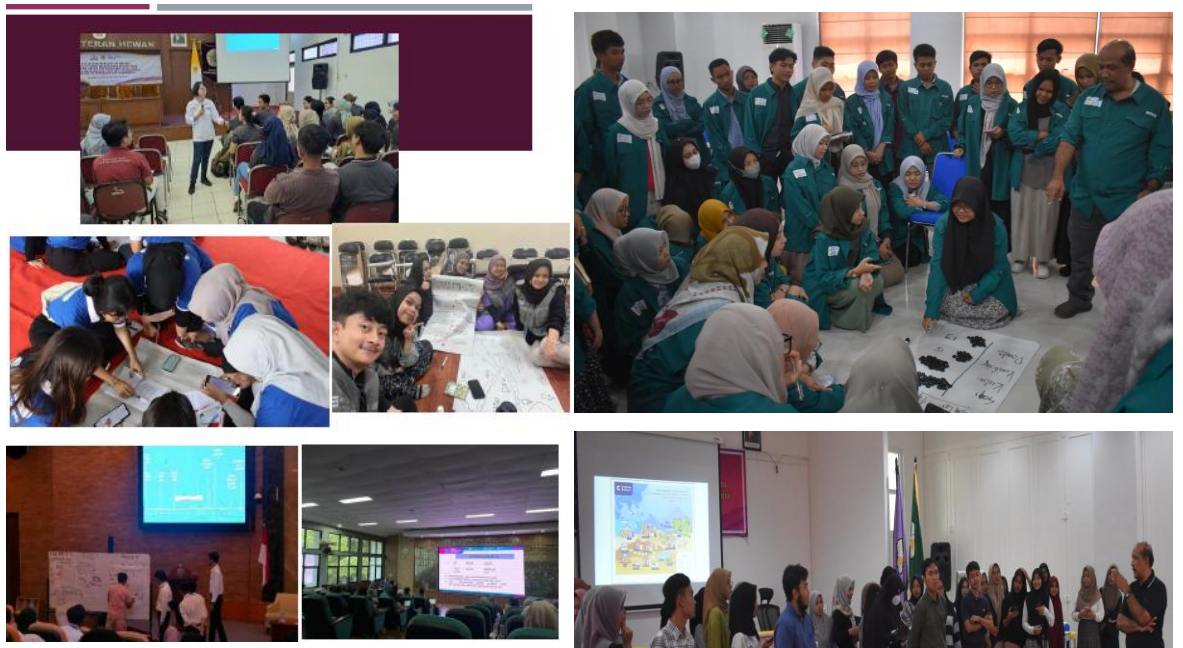
Training Modules:

Modules	Topics
1	Introduction of Training Scope
2	Epidemiological Triad: Host–Agent–Environment Interactions
3	Systematic Steps in Animal Disease Outbreak Investigation
4	Participatory Epidemiology Approach and One Health Concept
5	Practical Field Exercises, Epidemiological Data Collection, and Investigation Reporting

Preparing Veterinary Students for Animal Disease Surveillance and Outbreak Response in Indonesia

Training Methods and Learning Activities:

- **Interactive Classroom Discussions**
- **Simulation Exercises and Role-Playing**
- **Practical Interviewing Exercises**
- **Group Presentations and Discussion of Field Investigation Results**











Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

Training Targets and Achievements

Strengthening Frontline Veterinarian's Capacity

No.	Provinsi	Jumlah *Batch*)*	UNIVERSITAS	Target Peserta	Male	Female	Total
1.	Jawa Timur	2	UNAIR				
2.		1	UB				
3.		1	U. WIJAYA KUSUMA				
4.	Jawa Tengah dan DIY	4	UGM				
5.	Jawa Barat dan Banten	2	IPB				
6.		1	UNPAD				
7.	Aceh dan Sumatera Utara	3	USK				
8	Sulawesi Selatan dan Sulawesi Barat	3	UNHAS				
9	Nusa Tenggara Timur	2	UNDANA	60	28	32	60
10	Bali dan Nusa Tenggara Barat	2	UNUD,	60	32	28	60
11		2	Universitas Mandalika	60	33	27	60
	TOTAL	**23**		**690**	**319 (46,24%)**	**371 (53.76%)**	**690**



Total:
690
Participants across Indonesia

Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

Training Targets and Achievements

Preparing Veterinary Students for Animal Disease Surveillance and Outbreak Response in Indonesia



No.	Provinsi	Jumlah *Batch*	Target	Male	Female	total
1.	Universitas Wijaya Kusuma	1	30	25	30	55
2.	Universitas Gadjah Mada	2	60	58	203	261
3.	IPB *University*	2	60	30	60	90
4.	Universitas Padjajaran	1	30	18	70	88
5.	Universitas Syiah Kuala	2	60	14	61	75
6.	Universitas Hasanuddin	1	30	6	24	30
7.	Universitas Pendidikan Mandalika	1	30	19	22	41
8.	Universitas Nusa Cendana	1	30	29	51	80
9	Universitas Udayana	2	60	27	32	59
10	Universitas Airlangga	2	60	66	153	219
11	Universitas Brawijaya	2	60	26	74	100
	Total	**16**	**480**	**318 (29%)**	**780 (71%)**	**1098**

Courtesy of AFKHI–IARMCP, 2023–2024 Program Report

Total perticipants :
1098 Students (>target)

Final Program Evaluation and Key Outcomes: Training for Frontline Veterinarians and Veterinary Students

Key Strengths and Benefits of the Training Program

1. High Participant Engagement: Active participation through interactive learning methods.
2. Hands-On Field Experience: Practical outbreak investigation exercises and realistic simulations.
3. Continuous Mentorship: Individualized guidance, feedback, and support from facilitators.
4. Local Government Engagement: Encouraged similar training initiatives to strengthen workforce capacity and sustainability.

Recommendations for Program Improvement and Sustainability

1. Targeted Selection: Apply clear participant eligibility criteria.
2. Curriculum Improvement: Regularly review and update training materials.
3. Local Partnerships: Engage local governments to expand training initiatives.
4. Professional Networking: Establish an alumni network for knowledge sharing and collaboration.

“Interactive learning, practical field experience, and continuous mentorship build a competent One Health workforce capable of supporting epidemic intelligence through early disease detection, reporting, and information sharing”







Summary and Recommendation

- University-led One Health training initiatives play a significant role in strengthening workforce competencies through education, hands-on training, and professional partnerships.
- The One Health Student Club (OHSC) program contributes to developing the future One Health workforce by promoting multidisciplinary learning, community engagement, and sustainable partnerships.
- Through its training programs, AFKHI has equipped 690 frontline veterinary professionals and 1.098 veterinary students with practical knowledge and skills in applying the One Health approach, animal disease detection, outbreak investigation, and response. Collaboration among universities, veterinary professionals, government institutions, and communities helps strengthen participatory animal disease surveillance.
- A competent and well-connected One Health workforce facilitates the detection, reporting, verification, and sharing of disease signals, providing timely and actionable information to support epidemic intelligence, informed decision-making, and coordinated outbreak responses.
- **Recommendation:** Enhance One Health workforce competencies in epidemic intelligence through integrated Event-Based Surveillance and Indicator-Based Surveillance workshop/training to strengthen early disease detection, data analysis, information sharing, and rapid response in Indonesia.

Acknowledgments

- Directorate General of Higher Education, Ministry of Higher Education, Sciences and Technology of Indonesia
- Directorate General of Livestock and Animal Health, Ministry of Agriculture of Indonesia
- USAID
- SEAOHUN
- Indonesia One Health University Network (INDOHUN)
- University-based One Health Collaborating Centers (OHCC) in Indonesia
- The Indonesian Veterinary Schools Association (AFKHI)
- Indonesian Veterinary Medical Association (PDHI)
- Indonesia-Australia Red Meat and Cattle Partnership Program (IARMCP)
- Universitas Syiah Kuala
- Provincial/Local Livestock and Animal Health Services in Indonesia

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USK UNIVERSITAS SYIAH KUALA

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Thank you

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