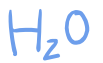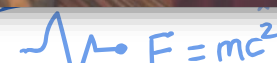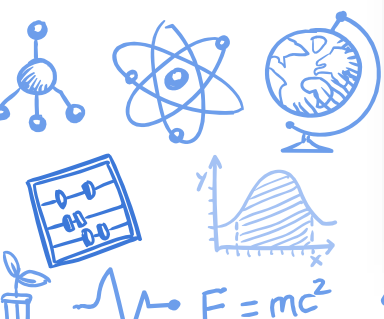# Research Quality Development
of the Thailand National Science and Technology Development Agency (NSTDA)

Ansucha Prucksunand Supattra Laorrattanasak **Ms. Sudarat Luepongpattana** Prasit Palittapongarnpim

rqm@nstda.or.th

National Science and Technology Development Agency: (NSTDA) in Thailand
Ministry of Higher Education, Science, Research, and Innovation

Established: in 1991

Employees: 2,952 as of 1 March 2019)

69.18%: Researcher

23.20% Operation

7.62% Management

Budget : USD113M from the Government + 20% from contracts, services and licenses

Missions : To drive Thailand science, technology and innovation by

- research, development, design and engineering
- technology transfer
- human resource development
- Infrastructure development
- efficient internal management

4 National Research Centers

BIOTEC
a member of NSTDA

NECTEC
a member of NSTDA

MTEC
a member of NSTDA

NANOTEC
a member of NSTDA

Research and Development **Q**uality **M**anagement （RQM）
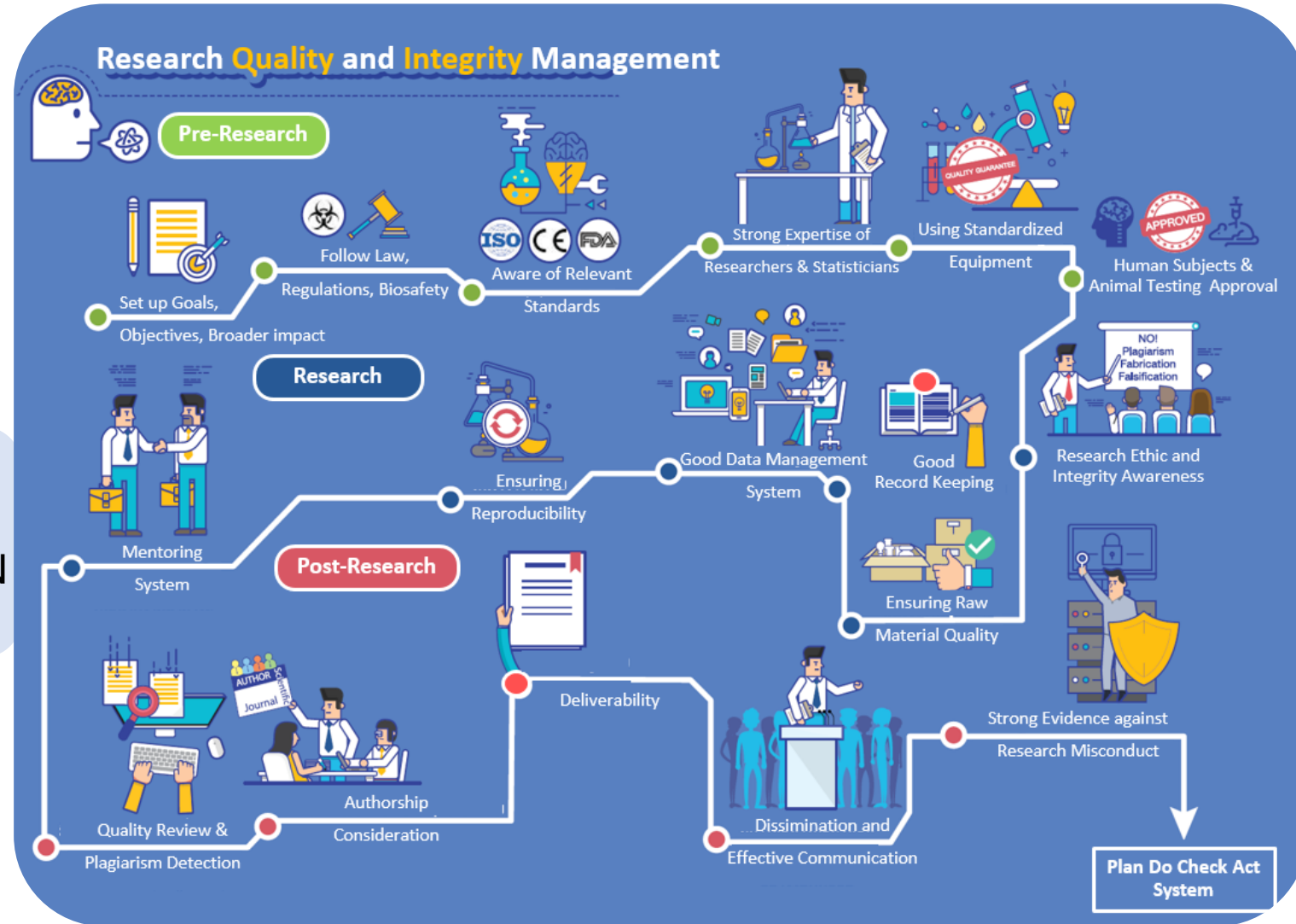
Pre -Research

- Research Quality Policies
- Law and Regulation Information and Guidelines
- Proposal Clinic
- Responsible Conduct of Research (RCR)
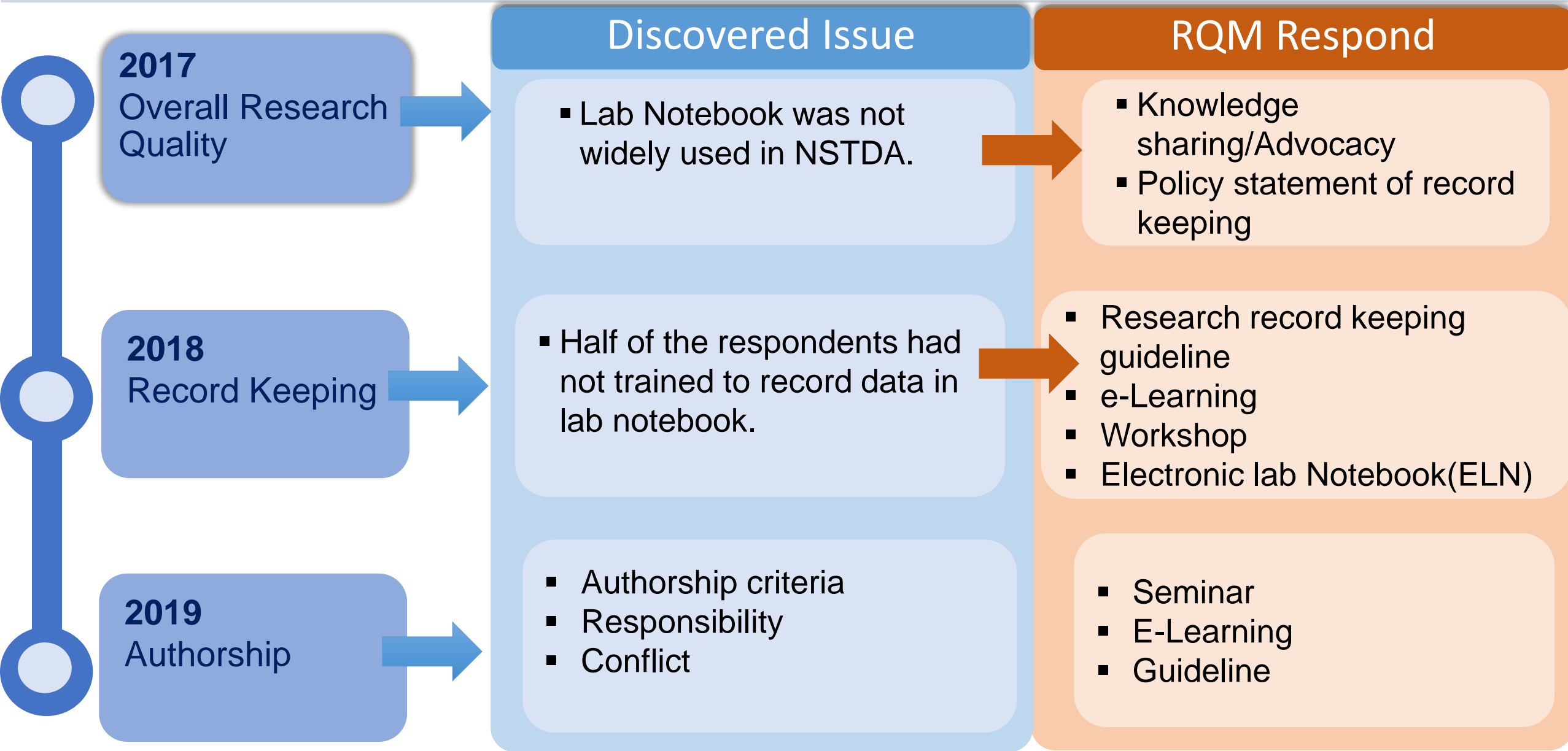- Advocacy and Training

Research

- Research Practice Training and Workshop
- Data Management
- Promoting Record Keeping e.g. Guideline, eLN
- Standard Procedure in Research Practice

Post -Research

- Manuscript Clinic
- Authorship/Inventorship Guideline
- Consult Regulator for Certification (Food and Drug Administration: FDA)


Research Quality and Integrity Management

Pre-Research

Set up Goals, Objectives, Broader impact

Follow Law, Regulations, Biosafety

Aware of Relevant Standards

Strong Expertise of Researchers & Statisticians

Using Standardized Equipment

Human Subjects & Animal Testing Approval

Research

Mentoring System

Ensuring Reproducibility

Good Data Management System

Good Record Keeping

Research Ethic and Integrity Awareness

NO! Plagiarism Fabrication Falsification

Ensuring Raw Material Quality

Post-Research

Quality Review & Plagiarism Detection

Authorship Consideration

Deliverability

Dissemination and Effective Communication

Strong Evidence against Research Misconduct

Plan Do Check Act System

Research Quality Development of NSTDA

	Discovered Issue	RQM Respond
2017 Overall Research Quality	▪ Lab Notebook was not widely used in NSTDA.	▪ Knowledge sharing/Advocacy ▪ Policy statement of record keeping
2018 Record Keeping	▪ Half of the respondents had not trained to record data in lab notebook.	▪ Research record keeping guideline ▪ e-Learning ▪ Workshop ▪ Electronic lab Notebook(ELN)
2019 Authorship	▪ Authorship criteria ▪ Responsibility ▪ Conflict	▪ Seminar ▪ E-Learning ▪ Guideline

Objective

To identify NSTDA staff's understanding about authorship

To address the issue for research quality improvement.

Methodology –Conduct a survey

Sampling

33%

30%

11%

26%

15%

14%

1,224 persons

167 persons
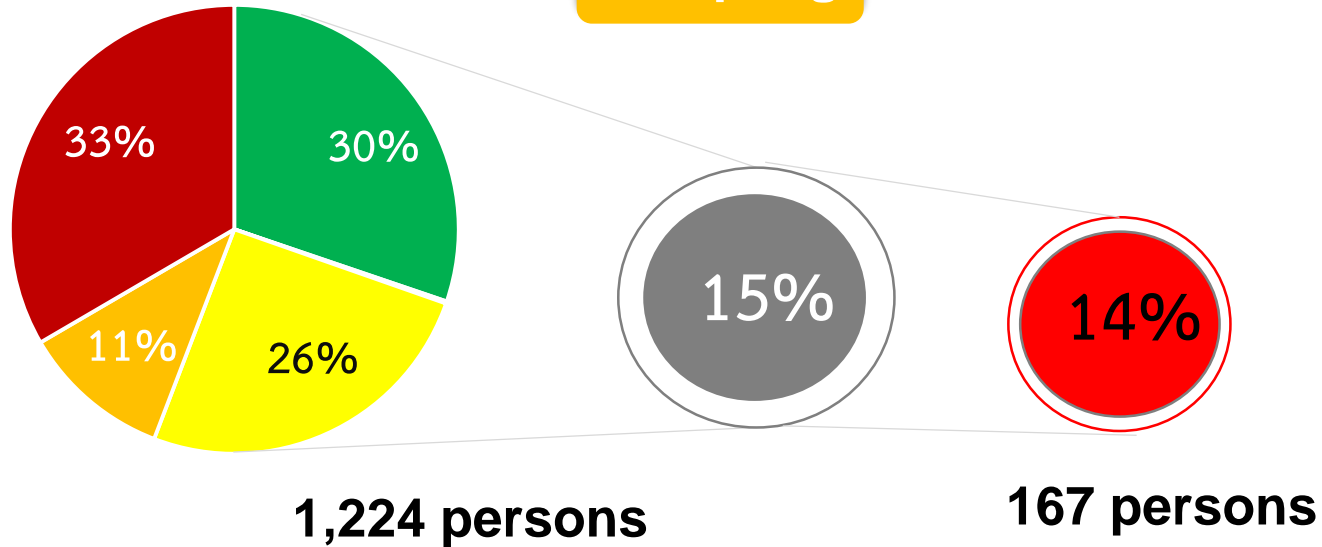
Research staff
working experiences> 1 year
（Data as of 5 Feb 2019）

Interviewee 13.7%
personal interview
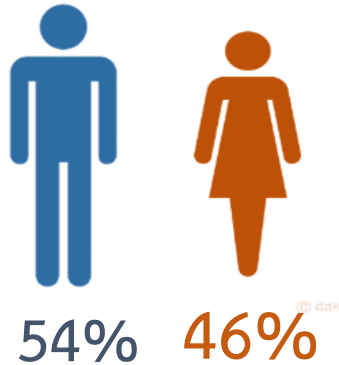during 15 Feb -9 Apr 2019
(7 weeks)

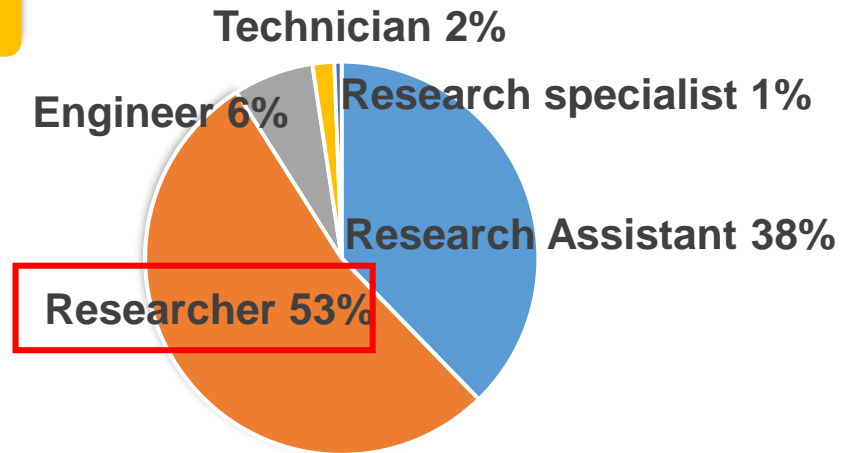**Personal interview**
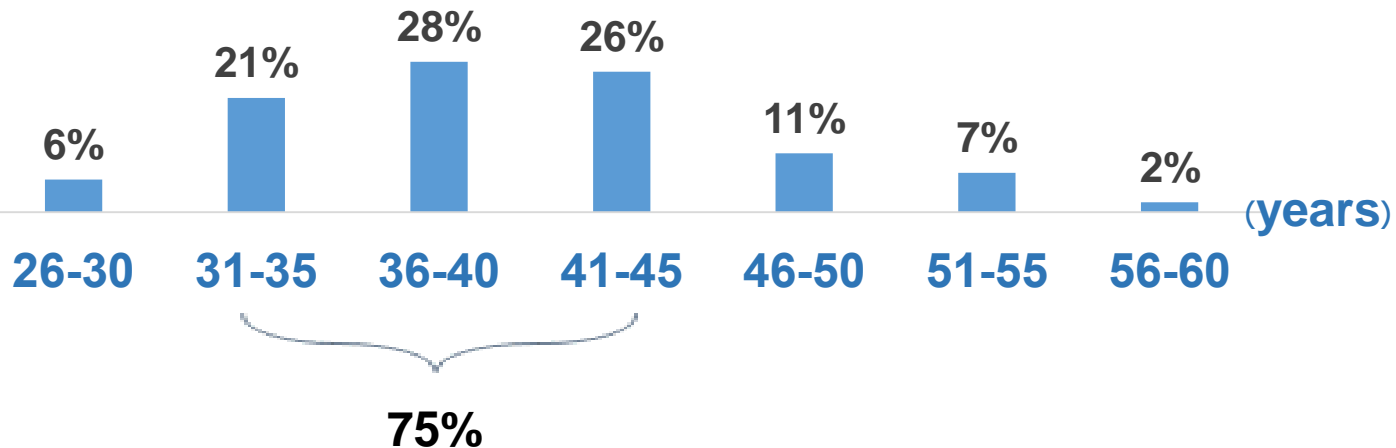
1 hour per person

Analysis
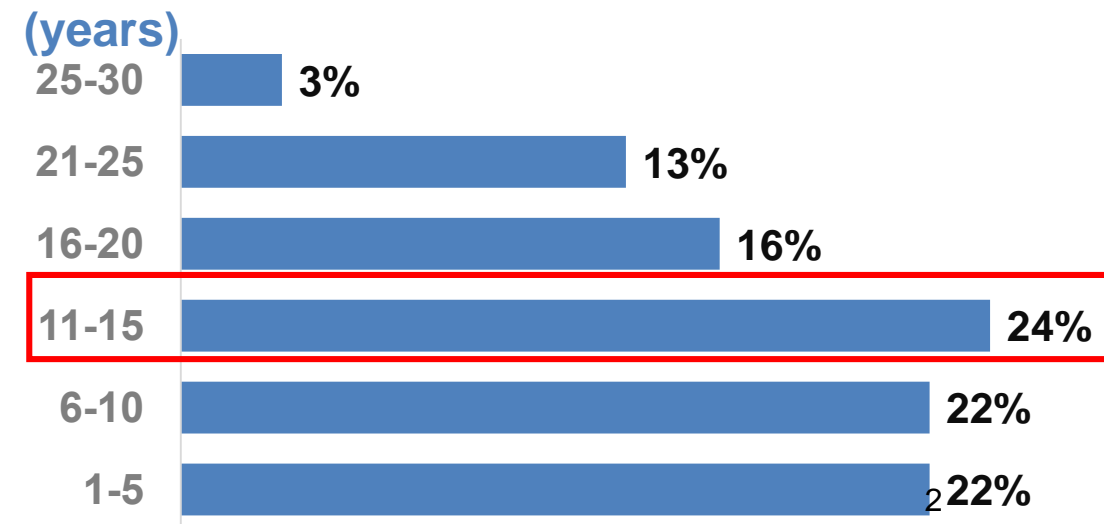
2019 Survey: Demographic data

Gender

54%   46%

Position

Technician 2%

Engineer 6%

Research specialist 1%

Research Assistant 38%

Researcher 53%

Work Experience

(years)

25-30	3%
21-25	13%
16-20	16%
11-15	24%
6-10	22%
1-5	22%

Age

6%   21%   28%   26%   11%   7%   2%   (years)

26-30   31-35   36-40   41-45   46-50   51-55   56-60

75%

Authorship study

93% Yes
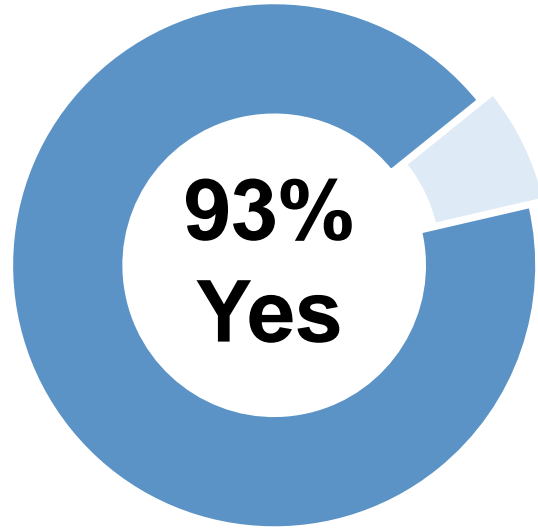
Have been an author in any research publication in the last years.

Type of publications

84% — 1
17% — 2
12% — 3
75% — 4
20% — 5
23% — 6
4% — 7
24% — 8

% Respondent — 100%, 80%, 60%, 40%, 20%, 0%

Type of publication

■ Research Assistant   ■ Researcher   ■ Engineer   ■ Technician
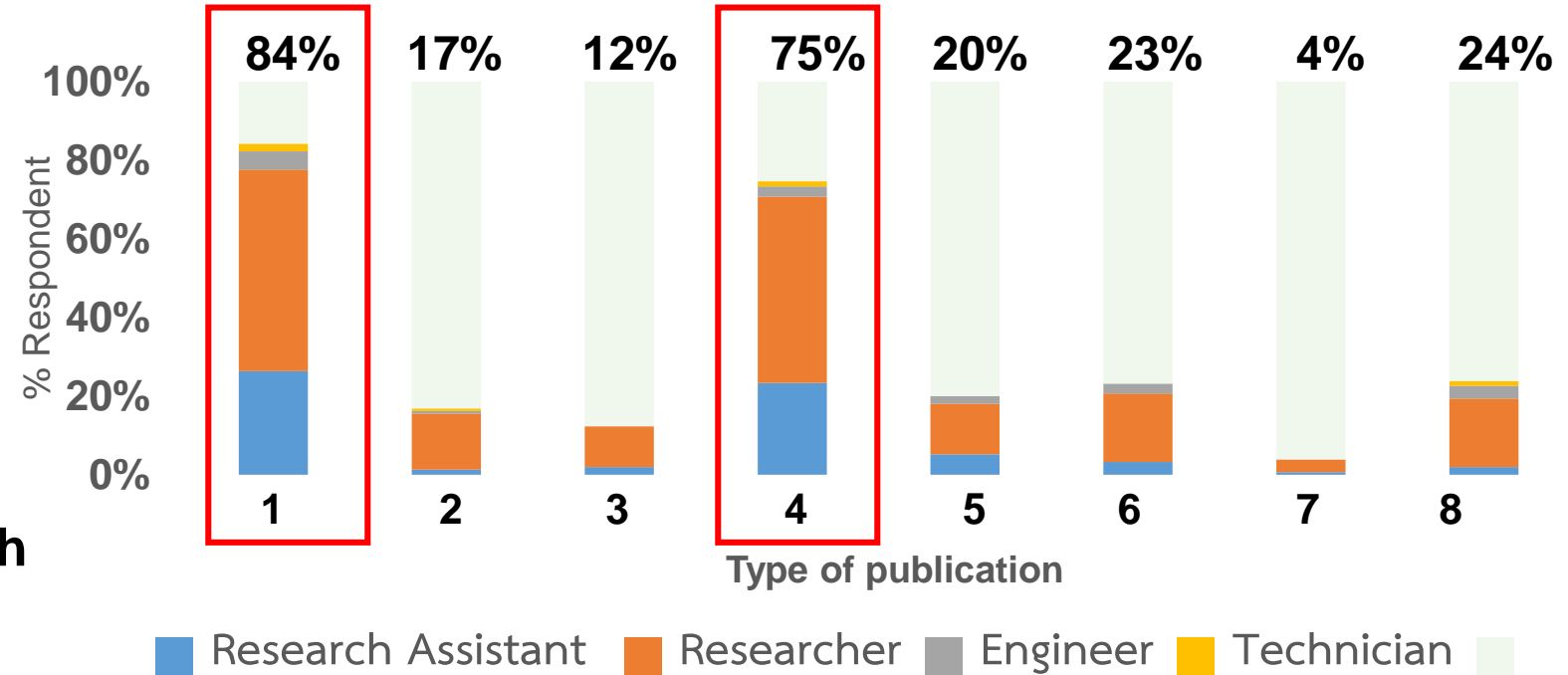
1 Research Article
2 Short Communication
3 Scholar Review
4 Proceedings conference with peer review
5 Proceedings conference without peer review
6 Book / Monograph / manual
7 Text book
8 Articles in publications, disseminate knowledge or create scientific awareness to the public

Awareness of Authorship Criteria

Categories by position

Know 31%

Not known 9%

Know but not sure 60%

Know + not sure 91%

Respondents 161 persons

% respondents

100%

50%

0%

Research Assisstant	Researcher	Engineer
11%	7%	9%
67%	52%	73%
21%	41%	18%
61	86	11 (person)

■ Know ■ Know but not sure ■ Not know

ICMJE Criteria

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work

- Drafting the work or revising it critically for important intellectual content

- Final approval of the version to be published

- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
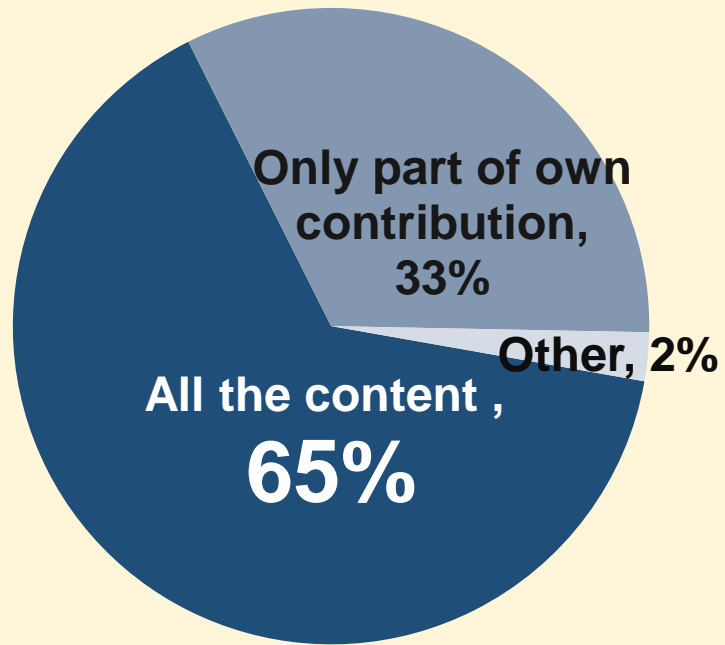
92%
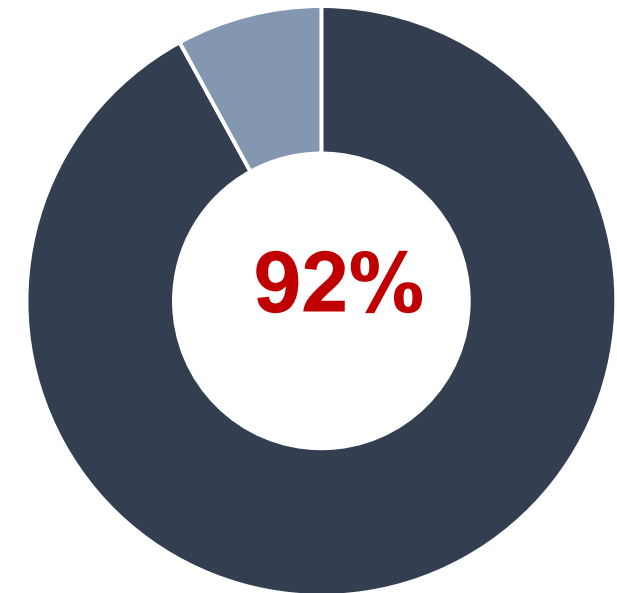
Agree to all the authorship criteria according to ICMJE

Respondents 162 persons
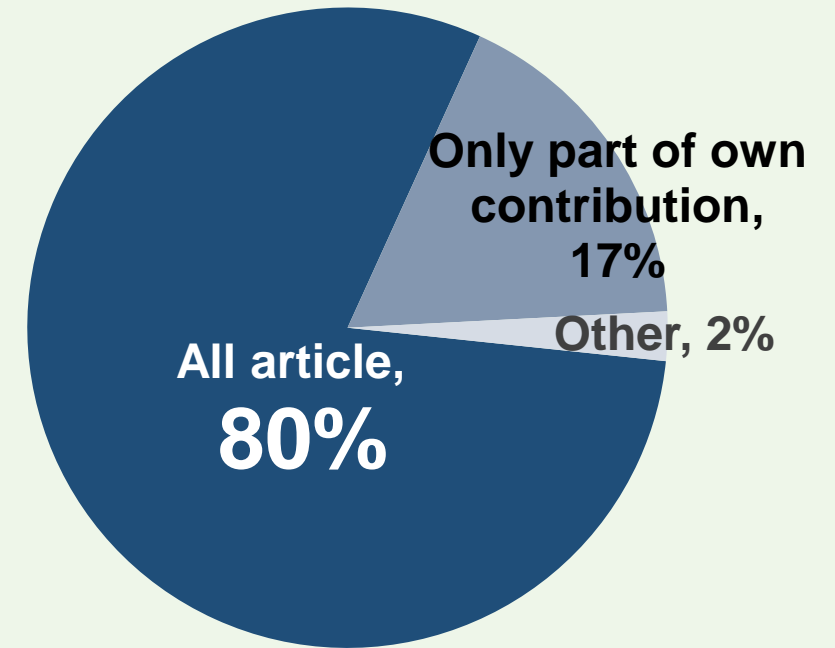
How much each author is responsible?

Only part of own contribution, 33%

Other, 2%

All the content, 65%

Respondents 161 persons

Only part of own contribution, 17%

Other, 2%

All article, 80%

Respondents 161 persons

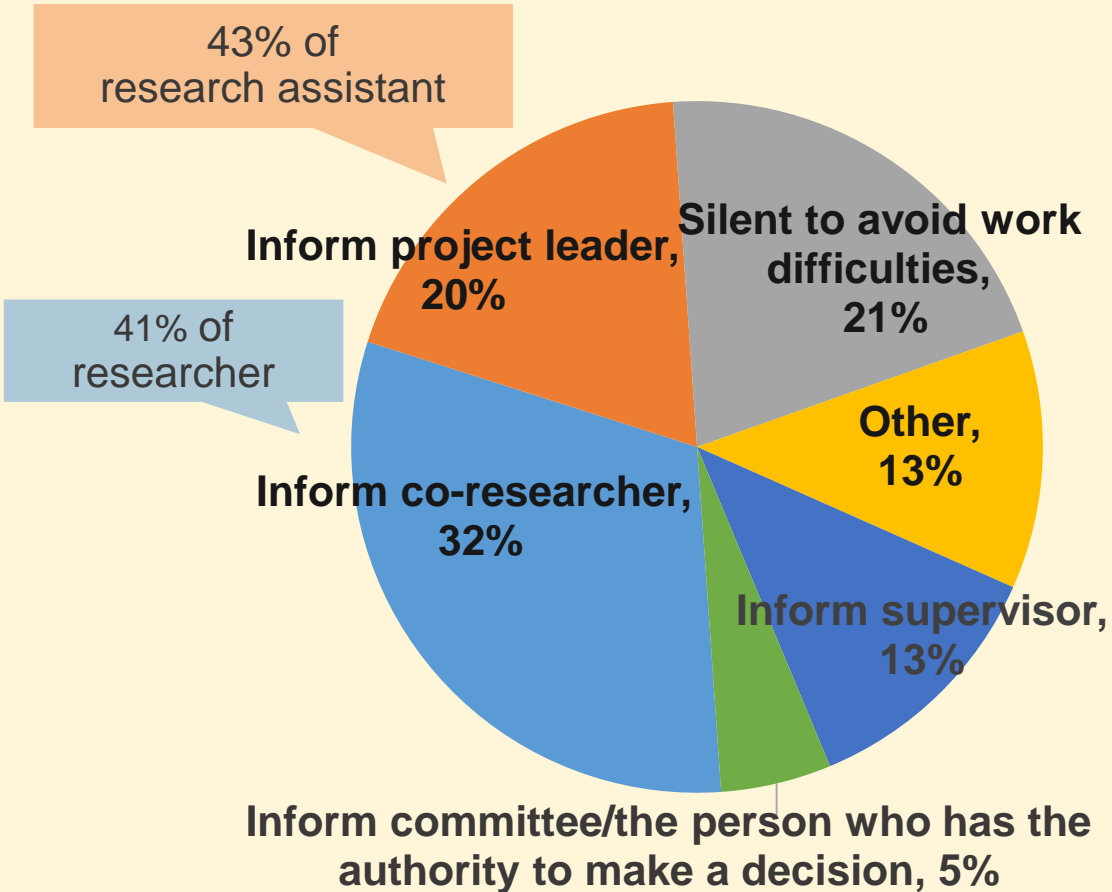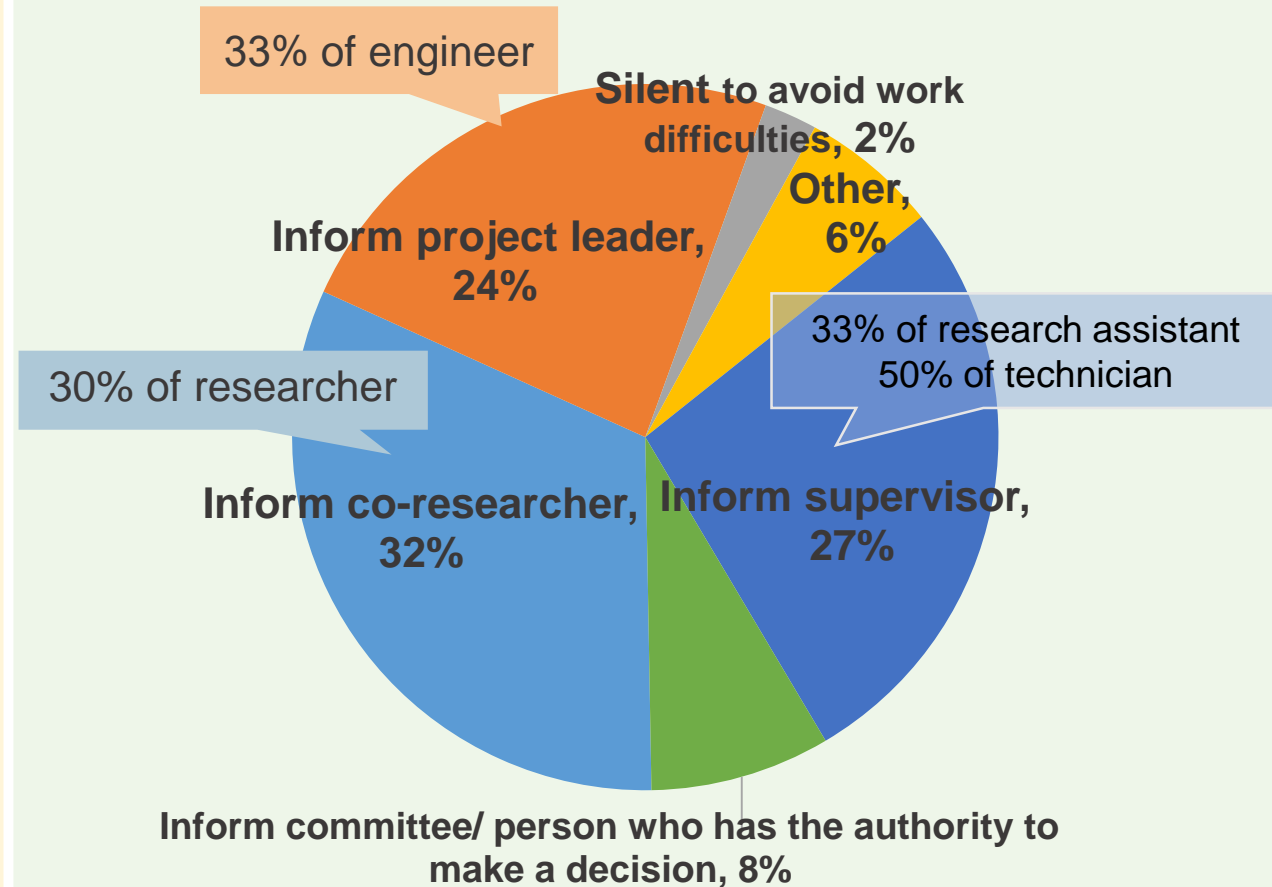33% still misunderstood about who should be responsible for the content in the article

20% believed that they are not responsible for the integrity of the article.

13

How to handle conflict of authorship

Main issue form 2019 survey

- Significant number of research assistants (67%) and engineers (73%) were not sure about authorship criteria.
- 33% of respondents agreed that author should be responsible for content accuracy in only part of their own contribution. However, 80% agreed that author should be responsible for the integrity of the whole article.
- 92% of respondents agreed to the ICMJE criteria although they were not in the medical field.
- Majority of those who encountered a conflict of authorship informed their colleagues, project leaders, or supervisor.

Implementation

The results from the survey provide a guideline for research quality improvement.

- Organized seminars
- Provided e-Learning courses on authorship
- Offered authorship guideline

Workshops

e-Learning

guideline for authorship

Acknowledgements

Prof. Dr. Supapan Seraphin