



## Background

- Pharmacists play an important role in ICT and AST in hospitals and the community.
- The need for education AMR and CID is increasing.
- However, the status of Japanese pharmaceutical education on CID and AMR is unclear.

## Purpose

- Identify the current state of education on CID and AMR.
- Analyze basic information to identify areas of improvement.
- Examine needed educational tools.

## Methods

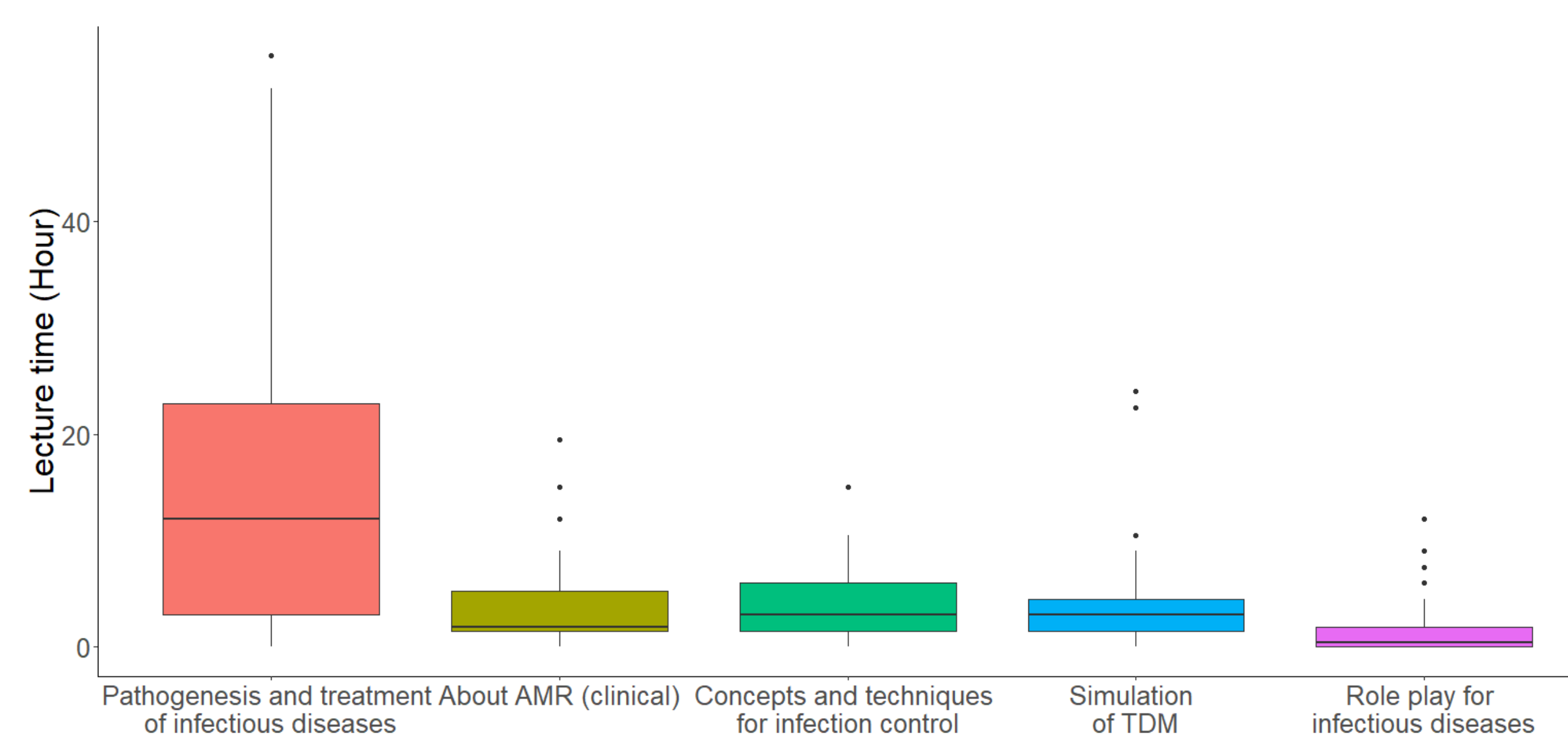
- We conducted a nationwide cross-sectional survey of pharmaceutical departments in Japanese universities.
- Deans or CID class faculties were asked to respond.
- Study period: February to March 2022
- Data on the following were collected using questionnaires:
  - Basic information
  - Number of faculty members with experience in CID
  - Lecture times for CID and AMR
  - Self-evaluation of CID and AMR education
  - The issues in CID and AMR education
- Descriptive analysis was performed

**Table 1. University background and items on CID and AMR lecture**

Background and items on AMR lecture	Number of response (%)
Schools established after 2003	17 (39.5)
University type	
public	9 (20.9)
private	34 (79.1)
Faculties with clinical experience specializing in infectious diseases	27 (62.8)
Affiliated hospital	19 (44.2)
Affiliated pharmacy	4 (9.3)
Agreement on medical personnel education with hospital	21 (48.8)
Educational opportunities specific to AMR are needed	35 (81.4)
Lecture time increased after National Action Plan for AMR	11 (25.6)
Plans to change lecture time regarding AMR in the future	8 (18.6)
	Median [IQR](min-max)
Number of students per grade	140 [90-240] (8-360)
Number of faculties involved in pharmacy education	53 [40.5-69] (30-116)
Number of clinical faculties	8 [7-10] (3-34)
Number of faculties for infectious disease education	7 [4-12] (1-29)
Of the above clinical faculties	3 [1-6] (0-13)
Specialized certification in infectious diseases	1 [0-1] (0-4)
Number of clinical faculties for infectious disease education per student	0.02 [0.01-0.06] (0.00-0.20)

\*Some missing values were noted among the 44 responding universities  
Number of valid answers: 43 universities

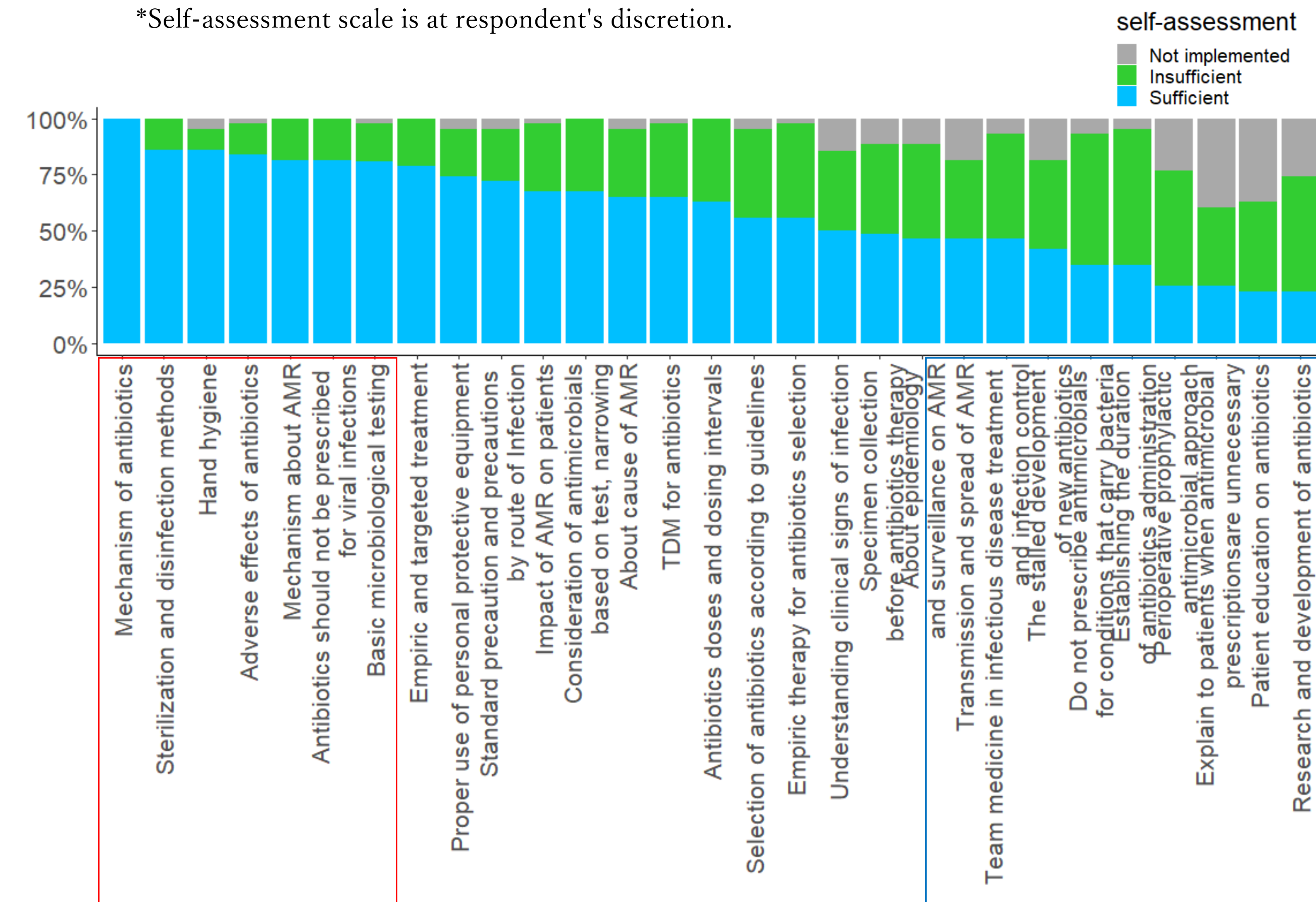
**Figure 1. Lecture hours related to CID**



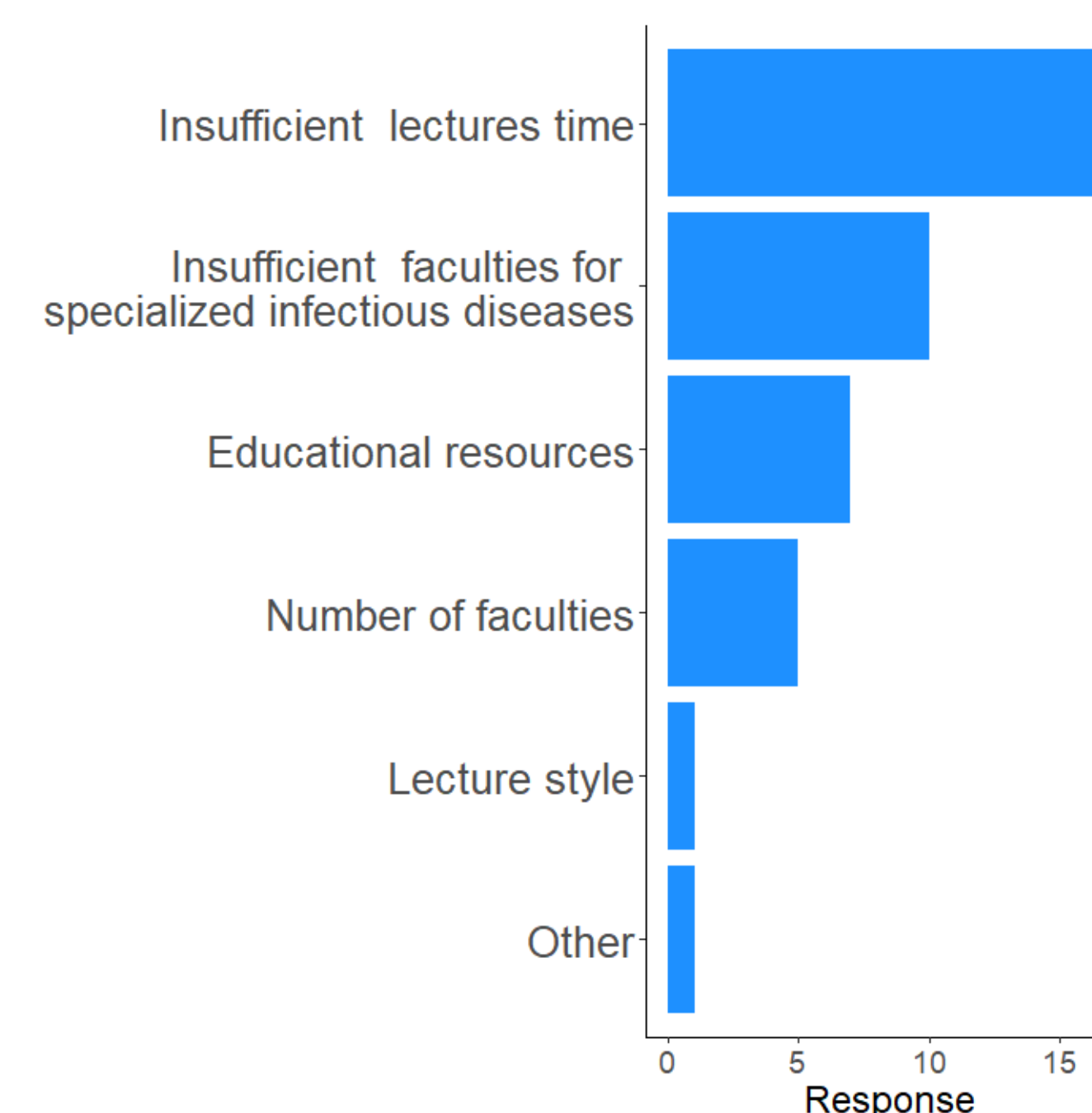
## Results

**Figure 2. Self-assessment of clinical infectious diseases**

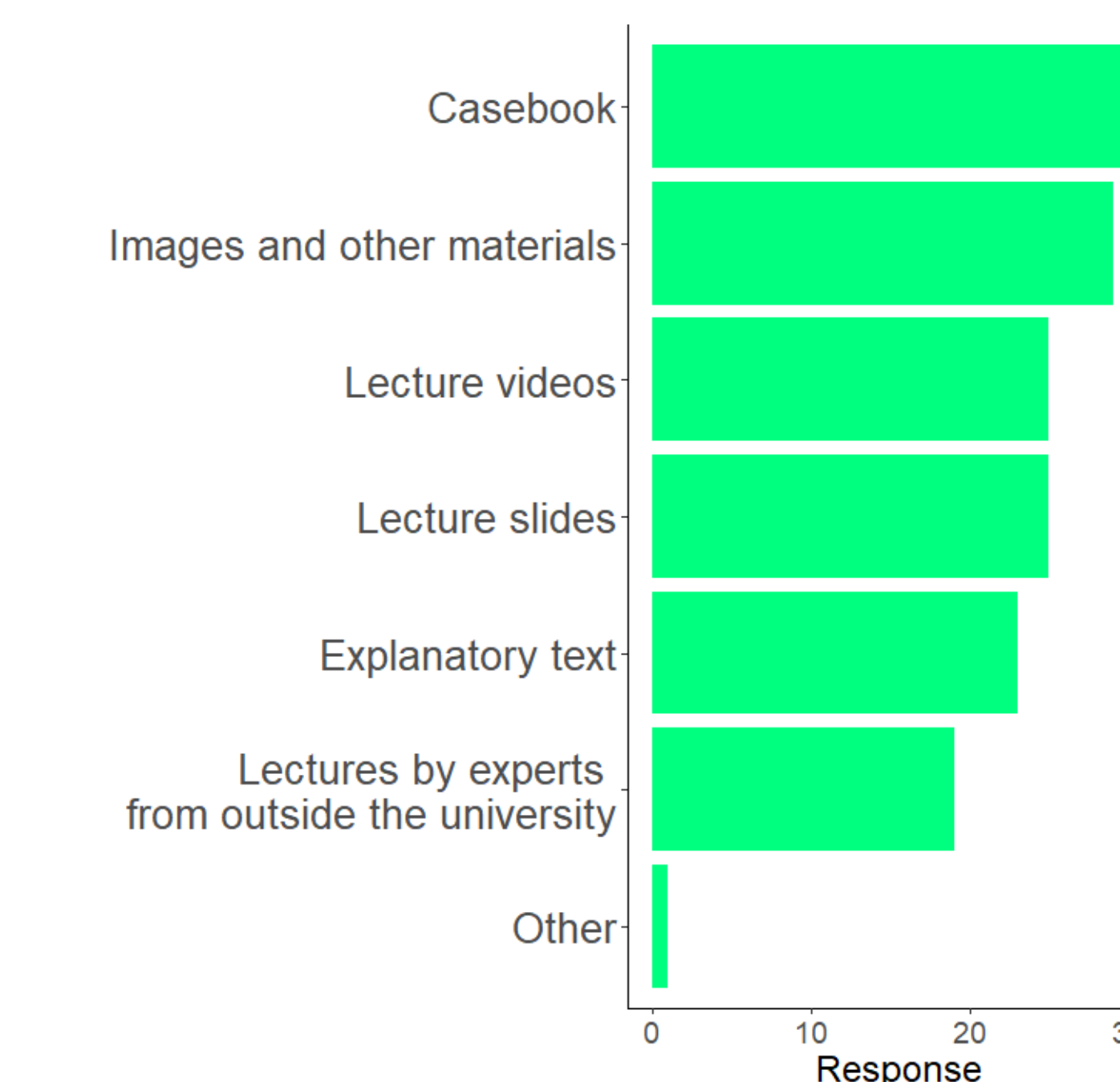
\*Self-assessment scale is at respondent's discretion.



**Figure 3. Issues faced in teaching CID**



**Figure 4. Expected educational tools**



\*Multiple responses available.

- 44 (59.5%) among 74 universities responded (Table 1).
- The median number [IQR] of faculties of CID education was 7 [4–12].
- Among them, 3 [1–6] were clinical faculty members (Table 1).
- 62.8% of the universities had faculties with clinical experience in CID (Table 1).
- Lecture time for CID and AMR varied widely among the universities (Figure 1).
- High self-assessment of basic lectures such as microbiology (Figure 2).
- Many respondents indicated that CID and AMR practical lectures were inadequate (Figure 2).
- Common responses to the problems of education were insufficient time and specialists (Figure 3).
- Many respondents expressed a need for practical tools such as case studies, videos, images (Figure 4).

## Conclusion

- This study revealed that educational status and resources for CID and AMR education vary.
- Practical lectures on CID and AMR may be insufficient.
- We suggest that the curriculum and resources needs to be examined and improved.
- Curriculum development and practical tools such as videos and casebook is needed in the future.

NOTE.

Unless otherwise stated, data are presented as n (%) in tables.  
ICT, Infection Control Team AST, Antimicrobial stewardship team  
AMR, Antimicrobial Resistance CID, Clinical Infectious Diseases  
TDM, Therapeutic Drug Monitoring