

# Biosecurity and Dual-Use

## In Practice

## In the Netherlands



Dr. Marcel van Bergen

14-05-2025

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Marcel van Bergen  
BioRiskManager @ Radboudumc  
and Radboud University



# Role

- Bio Safety Officer (BVF)
  - Environmental Safety Officer (MVF)
  - Occupational Health Hygienist (AH)
- Bio Risk**
- Professional
  - Management Advisor



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# Role

- **Locally:** *Radboud University and Medical Centre*
  - *BioRiskManagement Advisor*
  - *Teamleader Team BioRiskPrevention*
- **Nationally:** *Dutch Biosafety Association / BVF-Platform*
  - *Chair*
  - *Member of working groups and projects*
- **Internationally:** *European Biosafety Association*
  - *Chair Scientific Committee / Conference Working Group*

Radboudumc

Radboud Universiteit



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# Content Presentation

## Program

- 14.00 hrs Opening and welcome by the Netherlands Biosecurity Office
- 14.10 hrs **Biosecurity, AI and emerging technologies**  
*Jaime Yassif, Vice President, NTI Global Biological Policy and Programs, NTI | bio, USA*
- 14.35 hrs **Dual-use of emerging technologies & WHO dual use guidance**  
*Filippa Lentzos, Kings College London, UK*
- 15.10 hrs **Putting the WHO Global Guidance Framework into action:  
Case studies across the world**  
*Maria J. Espona, Health Security Partners, Argentina*
- 15.30 hrs Coffee break & networking
- 16.00 hrs **Biosecurity and dual-use in practice in Denmark**
- 16.25 hrs **Biosecurity and dual-use in practice in the Netherlands**  
**Marcel van Bergen, UMC Radboud, the Netherlands**
- 16.50 hrs ~~Bridging policy and action: Gain-of-function research at~~  
**the Australian Centre for Disease Preparedness**  
*J.T. Poulley, CSIRO Australian Centre for Disease Preparedness, Australia*
- 17.10 hrs Short break
- 17.30 hrs **Bridging policy and practice: Implementing the WHO Laboratory Biosecurity Guidance**  
*Kathrin Summermatter, University of Berne, Switzerland*
- 17.55 hrs **Culture of biosafety and biosecurity: What gets measured gets done**  
*Dana Perkins, USA*
- 18.20 hrs Closure by Biosecurity Office and EBSA president
- 18.30 hrs End of meeting and start of EBSA welcome reception

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# Content Presentation

## 1. Biosecurity and Dual-Use *(in the Netherlands)*

• *Nationally*  
**Biosecurity and dual-use in practice in the Netherlands**

## 2. **In Practice** *(in Nijmegen)*

- *Locally*

# Biosecurity and Dual-Use

In essence, **biosecurity is about safeguarding biological resources**, while **dual-use highlights the potential for misuse** of scientific advancements.

To emphasise the importance of addressing biosafety and biosecurity risks of research with biological material that could have severe or even catastrophic consequences to life, the laboratory biosecurity guidance uses the term **high-consequence research** to describe these experiments. Other terminology is used such as **dual-use research of concern**, **dual-use**, or **research of concern**. High-consequence research is at risk of potential malicious use of biological agents as well as unintentional exposure and/or release of such agents, despite its intended benefits. Hence it is of both biosafety and laboratory biosecurity concern. While some work can be clearly classified as high-consequence research, the aims and effects of other research may not be so obvious.

- My perspective:
  - Dual use is integral part of biosecurity
- Therefore ... :
  - I will not specifically mention “dual use”



# Biosecurity and Dual-Use In the Netherlands



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# Biosecurity in the Netherlands

## An update...

- External **evaluation** to **identify** critical gaps in the Dutch healthcare system (January 2025)
  - **WHO**
    - *Joint External Evaluation (JEE)*
    - *Voluntarily*
  - **ECDC**
    - *Public Health Emergency Preparedness Assessment (PHEPA)*
    - *Obliged*
- Netherlands: first country to **combine** these two evaluations
- Preparation: National **self assessment** by experts





# The Netherlands JEE/PHEPA: P7. Biosafety and biosecurity

**Saskia Rutjes**

**National Institute for Public Health and the Environment (RIVM) 29 January 2025 | Utrecht**

| Indicator | Capaciteit P7: Biosafety and Biosecurity |
|-----------|--|
|-----------|--|

- |      |  |
|------|--|
| P7.1 | Whole-of-government biosafety and biosecurity system in place for all sectors (including human, animal and agriculture facilities) |
| P7.2 | Biosafety and biosecurity training and practices in all relevant sectors (including human, animal and agriculture)                 |

# The Netherlands

## JEE/PHEPA:

### P7. Biosafety and biosecurity

Saskia Rutjes

National Institute for Public Health and the Environment (RIVM) 29 January 2025 | Utrecht

**Strengths**

**Best Practices**

**Areas which need strengthening**

**Challenges**

## P7. Biosafety and biosecurity

Saskia Rutjes

National Institute for Public Health and the Environment (RIVM) 29 January 2025 | Utrecht

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# Biosecurity in the Netherlands

**BUT....**

the lack of a national legal framework for biosecurity...

does not mean...

that it is not (partly) implemented on local level!

- The Nijmegen situation ..... is just an example...  
... and therefore, not automatically representing other Dutch organisations!

# Biosecurity in practice

## In Nijmegen



Dr. Marcel van Bergen  
BioRiskManagement Advisor / BioRiskProfessional

14-05-2025

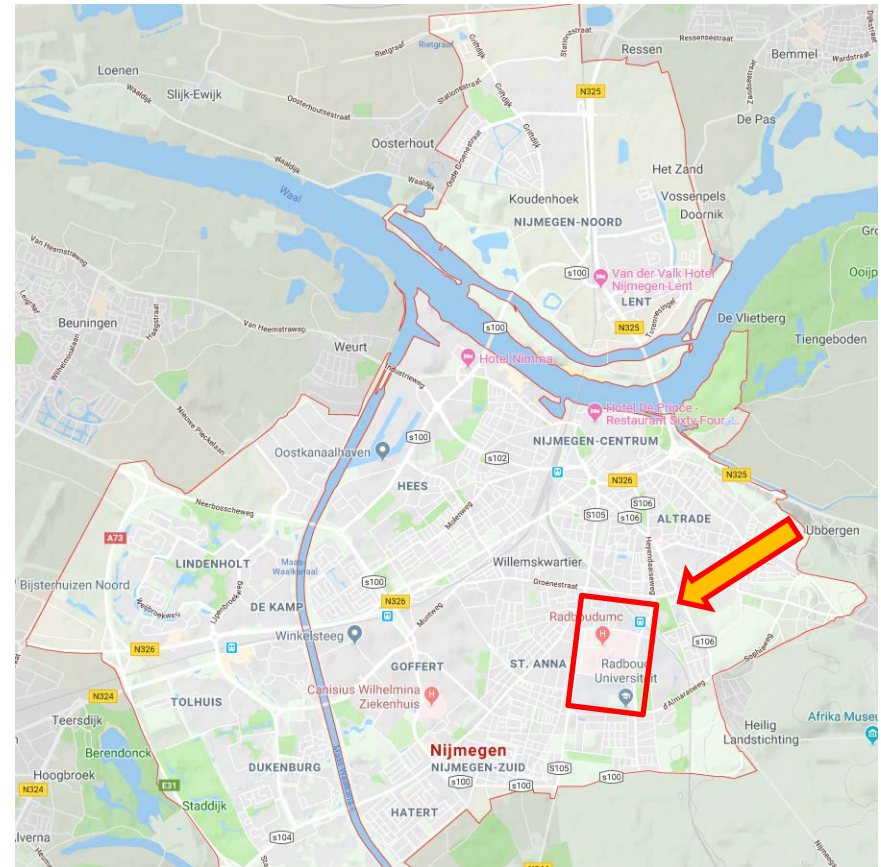
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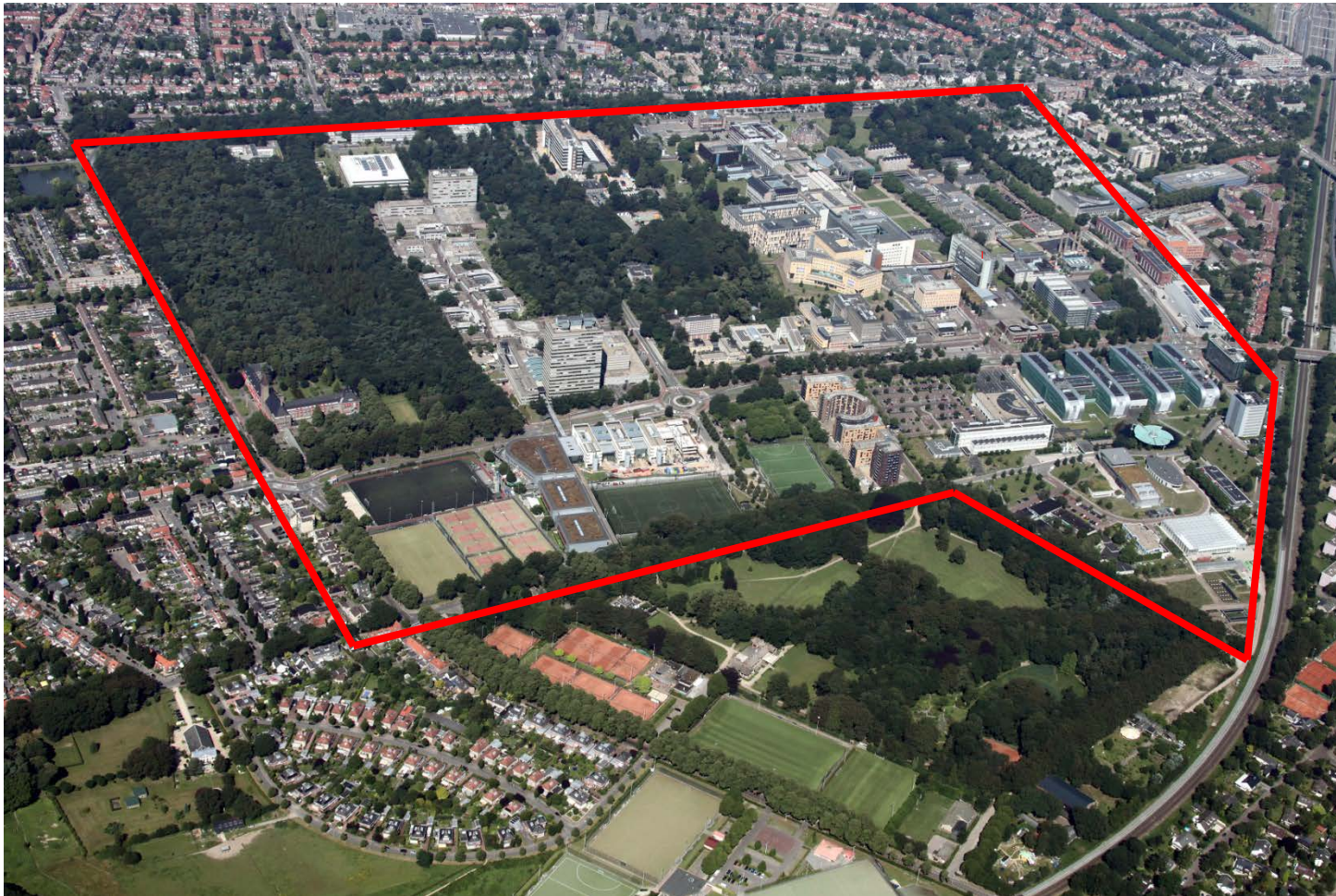


# Nijmegen, The Netherlands





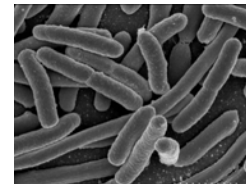
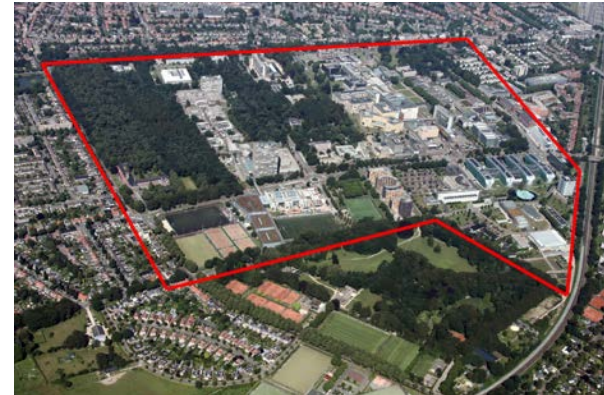
# Radboud Campus



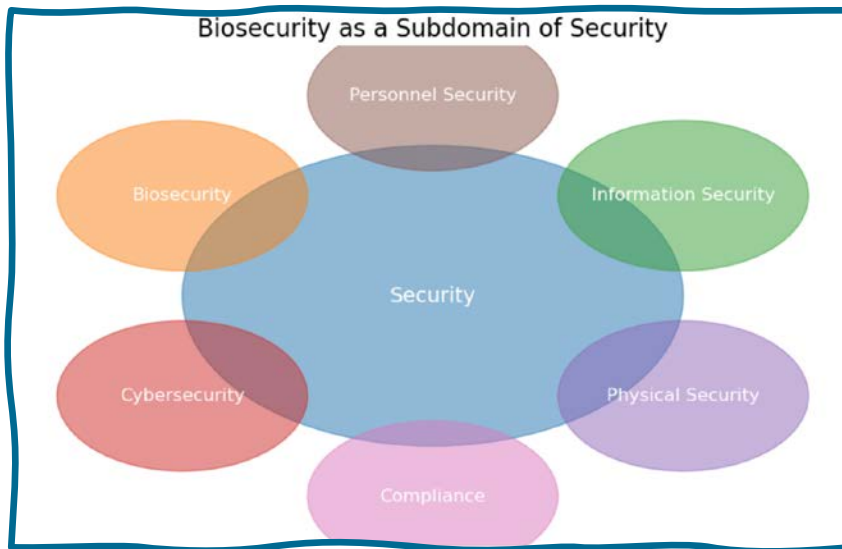


# BioRiskManagement @ Radboud Campus

- One **BRM**-System
  - University and Medical Centre
  - WildType (WT) and Genetically Modified Organisms (GMO)
    - *Contained Use*
    - *Deliberate Release*
  - Biosafety and Biosecurity



# Biosecurity... ..is just a part of Security



## Security around your workplace



18 October 2018

*The first week of November  
Radboudumc organizes a program  
around security at the workplace.*

This year, information security is a large part of the program (see: [link](#)). You are invited to attend these demonstrations and informative sessions. Eg. In the live hacking/ phishing session a specialist shows how easily one can be misled. Are you alert?

The other very relevant topic is cyber espionage: what strategies are being followed and how can we prevent this from happening? Should we be alert or is all our research open for sharing? Specialist who work at the highest level in our government are available to provide the answers.



# Biosecurity is covered by

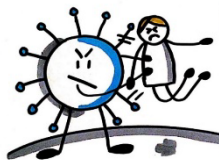
## Guideline for Working Safely with Biological Agents

### Scope

This document has been created for all persons (employees, guest employees, students) working with BA, whether directly or indirectly.

It describes rules for Biosafety (“how to keep bad bugs from people”) and for Biosecurity (“how to keep bad people from bugs”).

Working with genetically modified organisms (although this also often involves Biological Agents) is not covered in this document. A separate caution system for this is described in the [GMO manual](#) (UMC) / [webshare](#) (RU)



**Biosafety**  
*Keep bad bugs  
away from people*

**Biosecurity**  
*Keep bad people  
away from bugs*



## Biosecurity

### *Introduction*

Biosecurity refers to the legislative and institutional framework, principles, technologies and practices implemented to protect pathogens, toxins and sensitive technologies and related equipment from unauthorized access, loss, theft, misuse, abuse or intentional release.

In life sciences research, the term dual-use means that biological agents, including the knowledge about them and the underlying techniques, can be used in two ways.

In most cases, these are risk group 3 and 4 organisms but sometimes they are also risk group 2 organisms or non-human-pathogenic microorganisms. The full list can be found [here](#).

### *Procurement*

If purchasing a risk group 3 agent is desired then a [risk analysis for a category 3 agent](#) (UMC)/ [risk analysis for a category 3 agent via webshare](#) (RU) must be completed in advance and reviewed by the BSO. Part of this is a check for the dual-use aspect of the work (dual-use quick scan). If you wish to purchase BA that may fall under the definition of dual-use you should contact the BSO.



## Risk Inventory and Evaluation (RI & E) mapping the risks of activities involving

Click or touch to enter a text.

Date: Click or touch to enter a date.

Version: Click or touch to enter a text.

Author: Click or touch to enter a text.

Email address: Click or touch to enter a text.

### 1 Details of the agent

#### 1.1 Agent

Click or touch to enter a text.

#### 1.2 Pathogenicity class (human)

Choose an item.

#### 1.3 Pathogenicity class (veterinary)

Choose an item.

#### 1.4 Biosafety level

BSL Choose an item.

#### 1.5 Biosecurity

Choose an item. \*

Other: Click or touch to enter text.

\* Look up the level at: <https://www.bureaubiosecurity.nl/biologische-agentia/gecombineerde-lijst-met-biologische-agentia>.

- a. Fill in the **Quickscan** (<https://dualusequickscan.nl/>) en stuur deze op naar de BVF.  
Summeray: Click or touch to enter text.  
Update Quickscan necessary if research changes.
- b. Follow up questions for when an organism is stated on the EU export list (dual use)
  - i. Are there any plans for export outside the EU?  
Click or touch to enter text.
  - ii. Are there plans for publication, presentation at conference, collaboration with researchers outside the EU?  
Click or touch to enter text.

## Biosecurity information:

### Directly:

- Dutch Biosecurity Office

### Indirectly:

- WHO

- ICS > 03 > 03.100 > 03.100.70

## ISO 35001:2019

Biorisk management for laboratories

- Export of Strategic Goods

*Export of strategic goods*

In the case of dual-use, the regulations for the export of strategic goods apply in addition. These are goods to which, for reasons of security and international agreements, so much strategic importance is attributed that their export may not take place or may only take place under certain conditions.

Explanations on the export of dual-use goods can be found on the [Bureau Biosecurity](#) website and in a document prepared by customs ([UMC](#), [RU](#)). Which dual-use goods require an export licence is listed in Annex I of [EU Verordening 2021/821](#).

Following consultation with customs, the inspecting authority in the field of the transport of strategic goods, laws, and regulations have been translated practically as follows: If a department wishes to dispatch BA that may fall under the strategic goods category, it must make a request to do so via [Postbus Biorisk Prevention](#).

- Knowledge and Publication

*Knowledge and Publication*

Employees who work with risk group 3 or dual-use agents should handle knowledge and information related to the work with care. Publication of data from dual-use research may in rare cases be seen as [export of strategic goods](#); this may require an export license. Please also contact the [knowledge security officer](#) and [Postbus Biorisk Prevention](#) for this.

- Security of Facilities and materials

*Security of rooms and materials*

**Risk group 1:** No security measures apply to BA in risk group 1.

**Risk group 2:** Departments working with BA risk group 2 and above are not accessible to unauthorized persons. These departments are equipped with an access control system (at the department level) using name badges. The department head is responsible for authorizations.

**Risk group 3:** BA in risk group 3 and dual-use organisms are subject to an increased security level. The space where work is performed is equipped with access security (at the room level) and burglary protection. Access to the rooms is reserved for employees only; students do not have access. A supervisor from the department must be present during [maintenance](#) in the room and on vital systems. External personnel must sign a confidentiality statement (included in contract with external party).

- Security during activities

*Security during activities*

Activities with BA from risk group 3 or with dual-use organisms are always conducted by a minimum of two people (or is monitored via a camera). If you notice behavior in colleagues that could possibly indicate involvement in illegal practices with these materials or knowledge of them, you should discuss it with a confidential advisor in the department.

- Shipping

*Shipping*

All shipments of risk group 3 or dual-use agents to third parties should be recorded in the departmental records (including recipient data). For transportation regulations, see the standard regulations at [Extern transport](#).



# Radboud Campus Self Evaluation

- 2011
- 2015
- 2019
- 2025



Rijksoverheid  
 Ministerie van Volksgezondheid,  
 Welzijn en Sport

Bureau Biosecurity  
Search
 Home Biosecurity Office Information **Toolkits** Policy Pillars Biological agents

Home > Toolkits  

## Toolkits

The Biosecurity Office has developed various tools that can help you increase biosecurity awareness. Besides an informative film, you can also think of floating racks for micro-centrifuge tubes, postcards and the 10 golden security rules. The Biosecurity Self-scan Toolkit and the Vulnerability Scan are online tools to analyze biosecurity vulnerabilities in your organization. The Dual-Use Quicksan is a tool with which you can identify potential dual-use aspects in research. In addition, this tool contributes to stimulating dual-use awareness.

### Self-scan Toolkit

The **self-scan toolkit** is a relatively fast scan with a limited number of closed questions that can easily form an indication of strong and weak biosecurity aspects within your organization.

Dutch: [www.biosecurityselfscan.nl](http://www.biosecurityselfscan.nl)

Français: [www.outilevaluationbiosecurite.nl](http://www.outilevaluationbiosecurite.nl)

Russian: [www.biosecurityselfscan.nl/ru](http://www.biosecurityselfscan.nl/ru)

Türk: [www.biosecurityselfscan.nl/tr](http://www.biosecurityselfscan.nl/tr)

### Vulnerability Scan

The **vulnerability scan** is a more extended scan compared with the self-scan toolkit with questions, scenarios and best practices built around the eight pillars of biosecurity. [More information](#).

Dutch: [www.biosecuritykwetsbaarheidsanalyse.nl](http://www.biosecuritykwetsbaarheidsanalyse.nl)

Russian: [www.biosecurityvulnerabilityscan.nl/ru](http://www.biosecurityvulnerabilityscan.nl/ru)

Türk: [www.biosecurityvulnerabilityscan.nl/tr](http://www.biosecurityvulnerabilityscan.nl/tr)

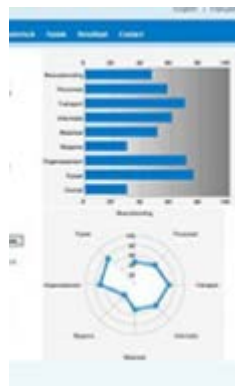
### Dual-Use Quicksan

The **Dual-Use Quicksan** aims to identify potential dual-use aspects in the research. In addition, this tool contributes to stimulating dual-use awareness among researchers. [More information](#).

Dutch: [www.dualusequicksan.com](http://www.dualusequicksan.com)

Russian: [www.dualusequicksan.com/ru](http://www.dualusequicksan.com/ru)

# 2011



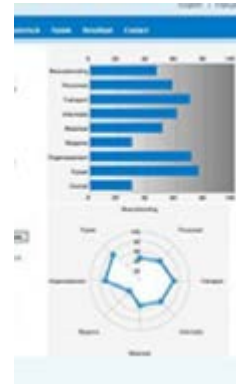
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# 2015



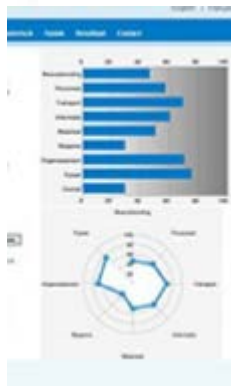
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# 2019

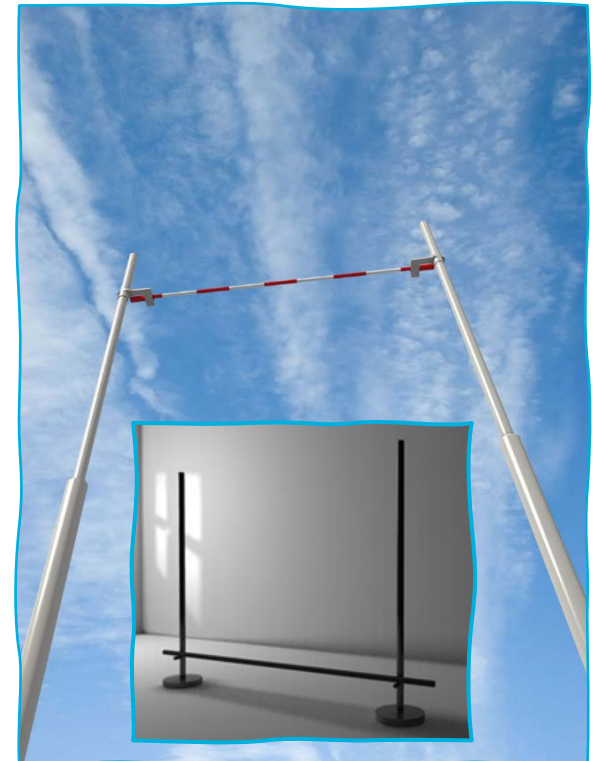
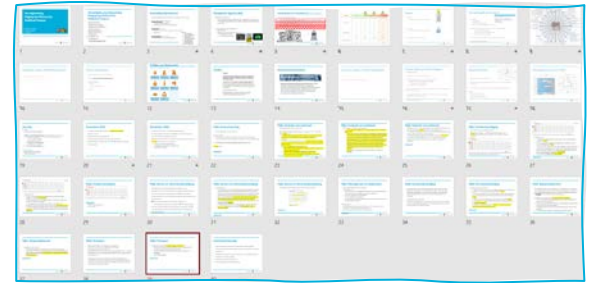
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# Results

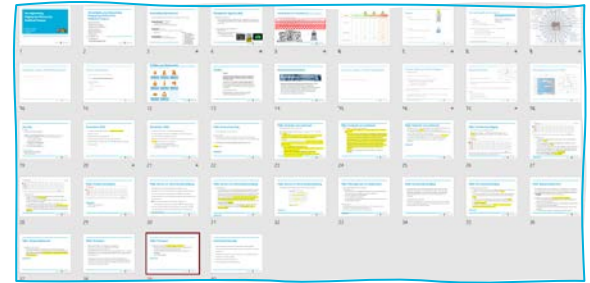
- **Presented to:**
  - BioRisk Prevention Committee (*permanent*)
  - Biosecurity Steering Group (*temporair*)
- **Discussed:**
  - Outcome varies per topic between 0-100%
  - Weighing the deviations
  - But....
    - *How high do we want to set the bar?*
    - *What standards do we want to aim for?*
    - *How ambitious do we want to be?*



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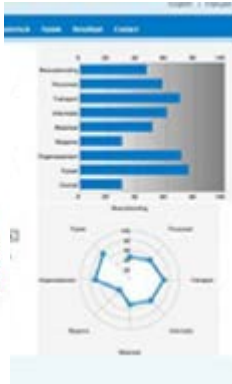
# Results

- **Presented to:**
  - BioRisk Prevention Committee (*permanent*)
  - Biosecurity Steering Group (*temporair*)
- **Discussed:**
  - Many improvements can be covered by team BioRiskPrevention
  - Many improvements can be achieved by adding / expanding the existing procedures
  - Some improvements are difficult to realise, because the complexity of the Radboud Campus
  - Broaden the approach
    - Chemical, Biological, Radiation, Nuclear



# Status 2025

**CONFIDENTIAL**  
**DOCUMENT**  
**CLASSIFIED INFORMATION**



- Progress to be discussed...
  - awareness



Biosecurity awareness

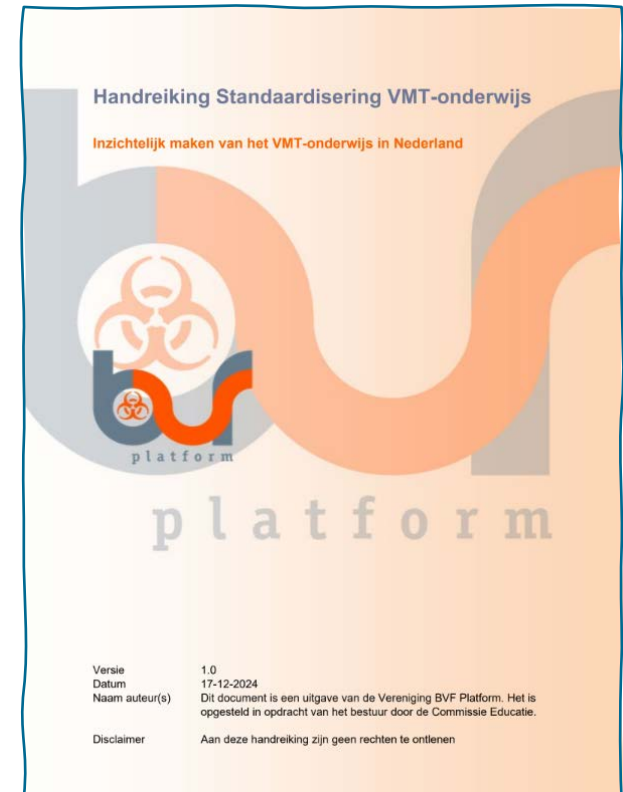
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# Awareness



# Awareness

- **Guidance Document** on Standardisation of Education in Safe Microbiological Techniques
  - *BVF-Platform Commission of Education*
  - *December 2024*
- **Learning objectives:**
  - The student:
    - **knows** the difference between biosafety and biosecurity
    - **is able to** mention measures to increase biosecurity
    - **is aware of** the existence of dual use research






# Awareness

## 2. Possible risks



Prevent abuse: biosecurity:

- Biological and Toxin Weapons Convention (BTWC, 1975):  
restrictions
- Nationaal Coördinator Terrorisme Bestrijding en Veiligheid (NCTV)  
 Nationaal Coördinator  
Terrorismebestrijding en Veiligheid  
Ministerie van Justitie en Veiligheid
- Dual use: weigh Risks against Results; maybe we should not  
publish this?
- Important:
  - Awareness and report
  - Safe storage of GMOs
  - Safe storage of data
  - Transport to reliable people and use reliable transporters

12



A Code of Conduct for Biosecurity  
Report by the Biosecurity Working Group

Royal Netherlands Academy of Arts and Sciences  
Amsterdam, August 2008



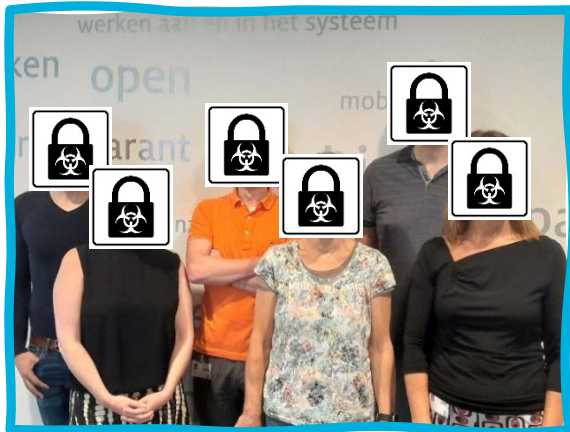
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# Awareness



# Acknowledgement

- Team BioRiskPrevention
  - **Danielle Odinot**
  - Cora Klaver
  - Manon van den Heuvel
  - Marijn van den Hondel
  - Nick van Bakel



- Saskia Rutjes
- Rik Bleijs
- Mijntje Aarts
- My Network

