

University of Groningen

A New Instrument for Microbial Epidemiology

Berends, Matthijs

DOI:
[10.33612/diss.177417131](https://doi.org/10.33612/diss.177417131)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2021

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):
Berends, M. (2021). *A New Instrument for Microbial Epidemiology: Empowering Antimicrobial Resistance Data Analysis*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. <https://doi.org/10.33612/diss.177417131>

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A
NEW INSTRUMENT
FOR
MICROBIAL
EPIDEMIOLOGY

*Empowering
Antimicrobial Resistance
Data Analysis*

Matthijs S. Berends

COLOPHON

Cover design: Matthijs Berends (images used with permission)
Layout: Matthijs Berends
Printing: Gildeprint – www.gildeprint.nl

The work described within this thesis was supported by (1) the Certe Medical Diagnostics and Advice Foundation, (2) the INTERREG V A (202085) funded project EurHealth-1Health (<http://www.eurhealth1health.eu>), part of a Dutch-German cross-border network supported by the European Commission, the Dutch Ministry of Health, Welfare and Sport, the Ministry of Economy, Innovation, Digitalisation and Energy of the German Federal State of North Rhine-Westphalia, and the Ministry for National and European Affairs and Regional Development of the German Federal State of Lower Saxony, (3) the European Union’s Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie Grant Agreement 713660 (MSCA-COFUND-2015-DP “Pronkjewail”), and (4) the European Society for Clinical Microbiology and Infectious Diseases (ESCMID) through the ESCMID Study Group for Antimicrobial Stewardship (ESGAP).

Printing of this thesis was financially supported by the Certe Medical Diagnostics and Advice Foundation. This support is greatly appreciated.

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 groningen

A New Instrument for Microbial Epidemiology

Empowering Antimicrobial Resistance Data Analysis

Proefschrift

ter verkrijging van de graad van doctor
aan de Rijksuniversiteit Groningen op gezag van
de rector magnificus prof. dr. C. Wijmenga
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op
woensdag 25 augustus om 11:00 uur

door

Matthias Simeon Berends

geboren op 27 november 1985

te Harderwijk

Promotor

Prof. dr. Alex W. Friedrich

Copromotores

Dr. Corinna Glasner

Dr. Gunnar I. Andriessse, MBA

Beoordelingscommissie

Prof. dr. Christian G. Giske

Prof. dr. Maarten J. Postma

Prof. dr. Andreas Voss

Paranimfen

Heine Bosma

Christian F. Luz

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In preparation

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* Equal contribution

† Equal contribution

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```
##' @export
##' @noRd
next.ab <- function(x, y, value) {
  if (!"Class <ab>") {
    return(as.character(x))
  }
  return(as.data.frame(x))
}

##' @method [[ ab
##' @export
##' @noRd
*[".ab" <- function(x, ...) {
  y <- NextMethod()
  attributes(y) <- attributes(x)
  y
}

##' @method [ ab
##' @export
##' @noRd
*["[.ab" <- function(x, ...) {
  y <- NextMethod()
  attributes(y) <- attributes(x)
  y
}

##' @method [ ab
##' @export
##' @noRd
*["[.ab" <- function(i, j, ..., value) {
  y <- NextMethod()
  attributes(y) <- attributes(i)
  return(after_integrity_check(y, "antimicrobial code", antibiotics$ab))
}

##' @method [ ab
##' @export
##' @noRd
*["[.ab" <- function(i, j, ..., value) {
  y <- NextMethod()
  attributes(y) <- attributes(i)
  return(after_integrity_check(y, "antimicrobial code", antibiotics$ab))
}

c.ab <- function(x, y, value) {
  x <- list(x, y)
  return(NextMethod())
}

attributes(y) <- attributes(x)
return(after_integrity_check(y, "antimicrobial code", antibiotics$ab))
}

##' @method [ ab
##' @export
##' @noRd
*["[.ab" <- function(x, i, j, ..., value, PAUSE, ...) {
  y <- NextMethod()
  attributes(y) <- attributes(x)
```

The background is a dark blue/black field with a complex pattern of light blue lines and shapes. The lines form a network of interconnected nodes and paths, resembling a circuit board or a neural network. Overlaid on this are several semi-transparent, light blue biological cells, some of which are elongated and rod-shaped, others more rounded or spherical. The overall aesthetic is scientific and technological.

Section I

*Where We Were,
Where We Are,
Where We Can Go*

