

به نام خدا

Concept of Time

An Introduction

Davood Khalili, MD, MPH, PhD

Department of Biostatistics and Epidemiology

Research Institute for Endocrine Sciences

Shahid Beheshti University of Medical Sciences

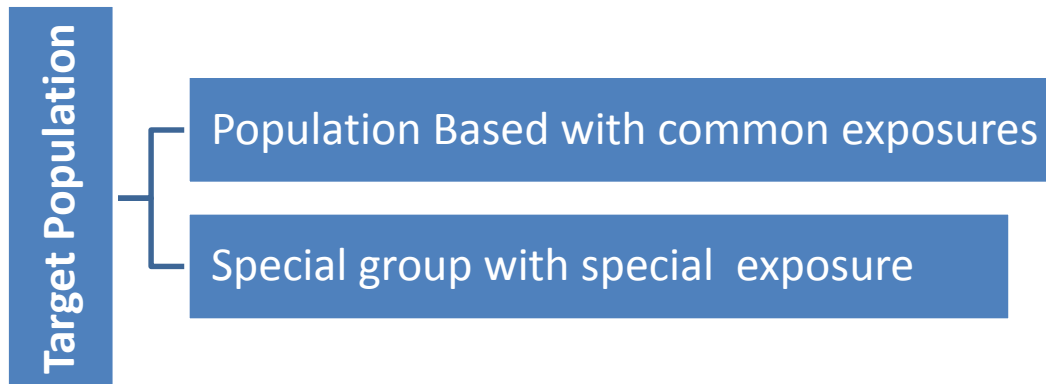
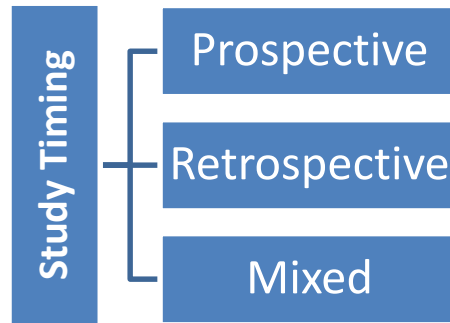
- We are going to discuss about what makes cohort data “tricky”.

TIME

- We will talk about the kinds of longitudinal studies as well.

Types of Cohort studies

- Based on Study timing
- Based on Target population
- Based on Measurement times
- Based on Stability of population



Measurement Times

Life table
cohort



- Summarized exposure
- Usually summarized time
- Usually cumulative outcome (incidence)

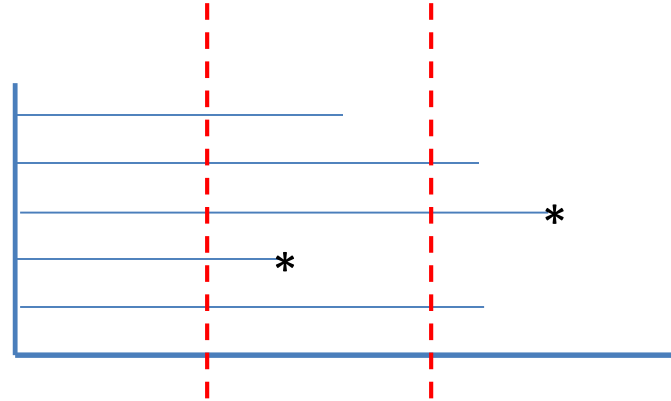
Longitudinal
cohort



- Repeated measurements of exposures
- Repeated measurements of outcomes
- Considering change of exposure
- Considering multiple outcome occurrences

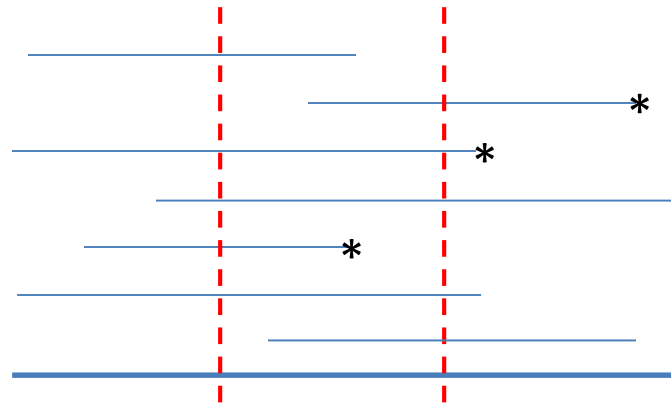
Stability of Population

Fixed cohort



- Participants age over time
- Number declines with drop-out, death, and achieving outcome

Dynamic cohort



- Participants vary over time
- Often defined by geographic unit
- Number is depend on the target population

Panel Study ?

Time

Time of Exposure

Time of Follow-up

Time of Outcome

There is a minimum time for measurement of exposure in all subjects.

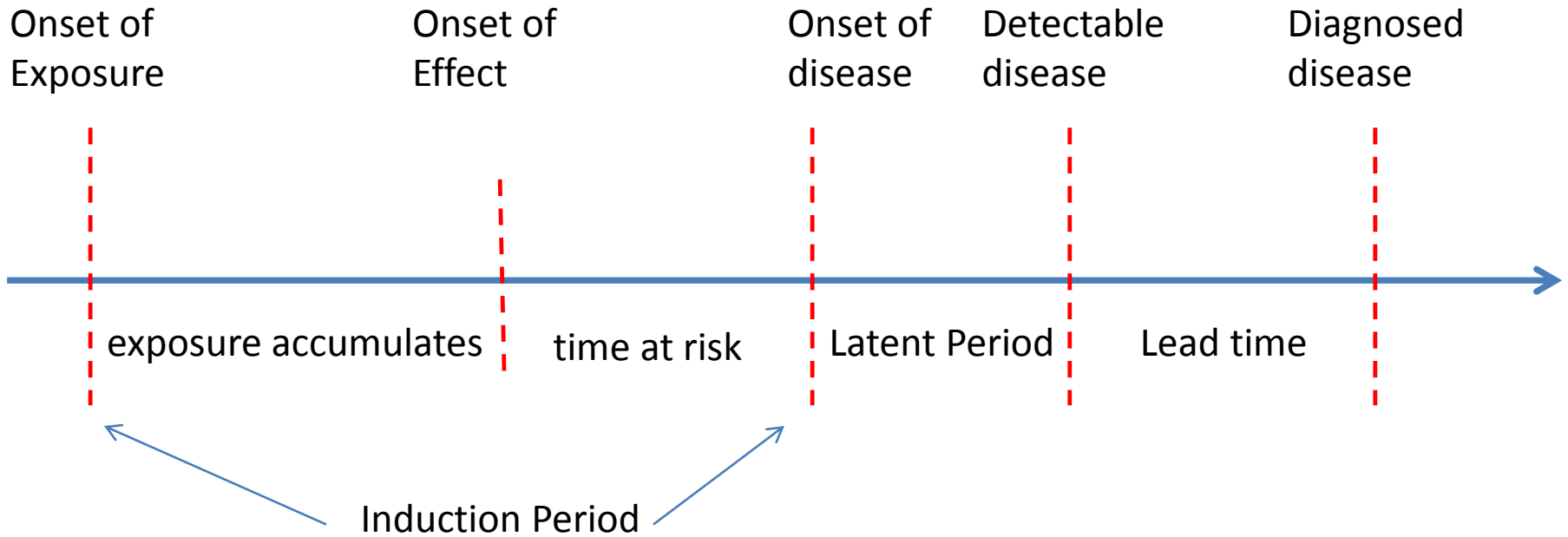
Typical summaries include current level of exposure, average exposure, cumulative exposure or time-weighted average of intensity of exposure.

The decision about what time to include for a given individual in the denominator of the rate corresponds to the assumption about Induction time.

The duration of follow-up should be pre-specified regarding Induction period and stability of the exposure.

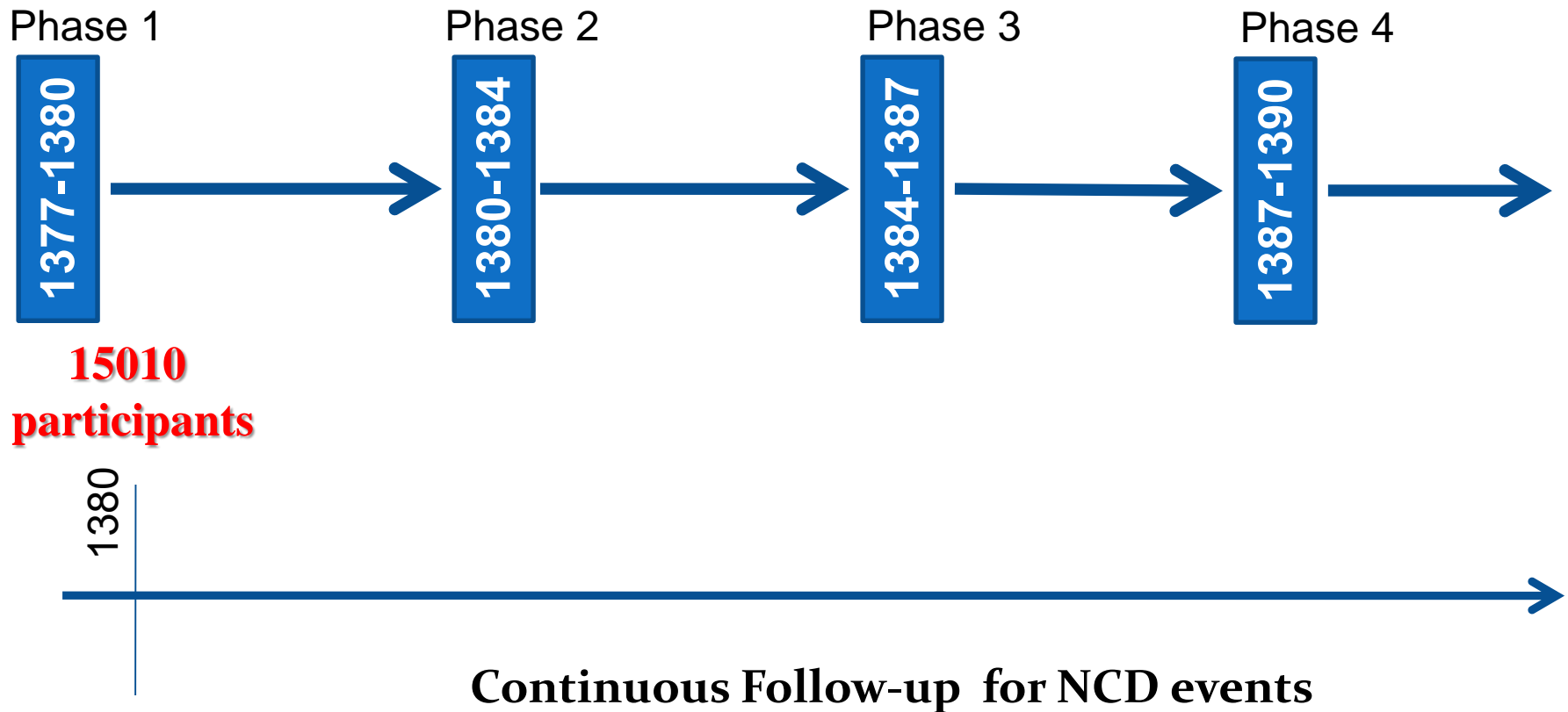
The time of event should be defined as unambiguously and precisely as possible.

Times between exposure and outcome

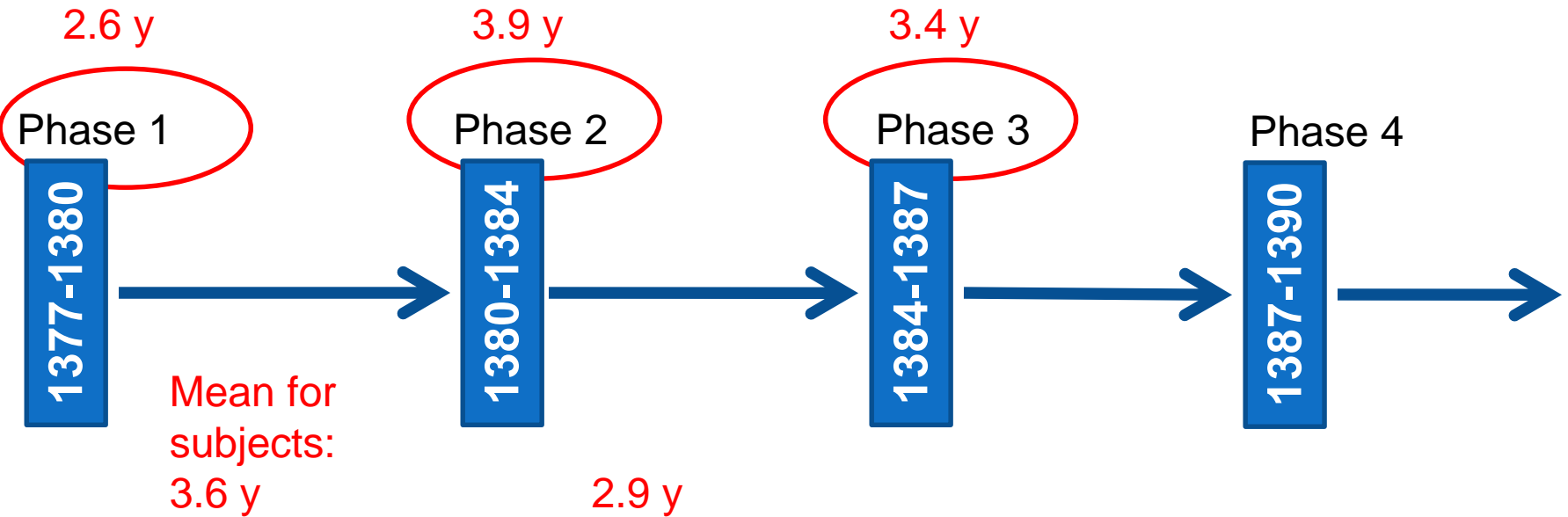




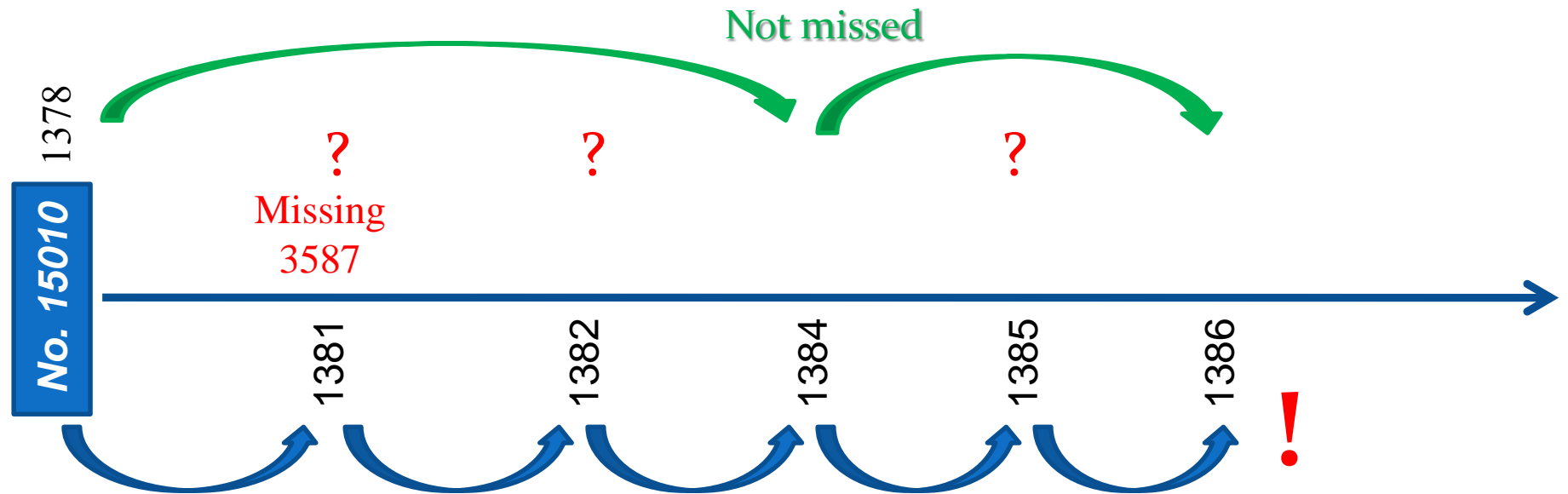
Tehran Lipid and Glucose Study (TLGS)



TLGS Cohort

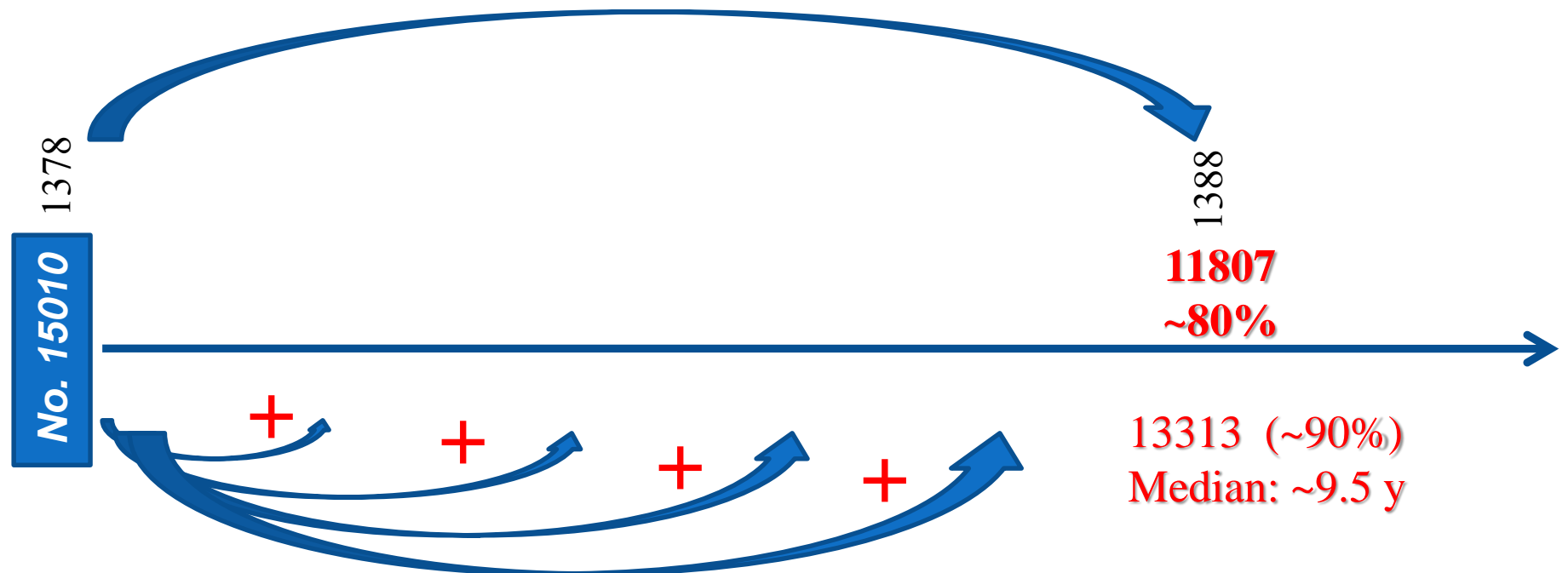


TLGS Cohort



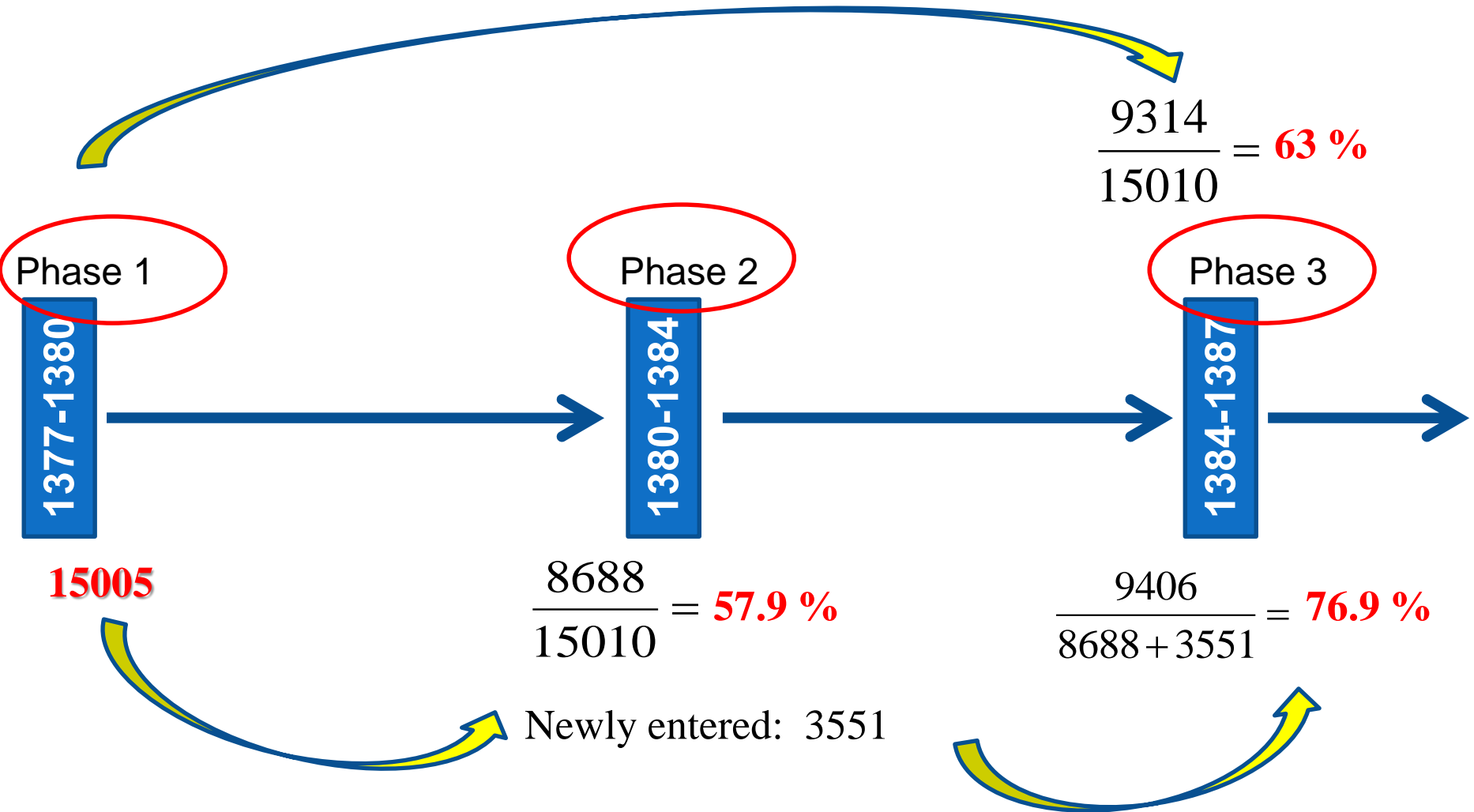
Continuous Follow-up for NCD events

TLGS Cohort

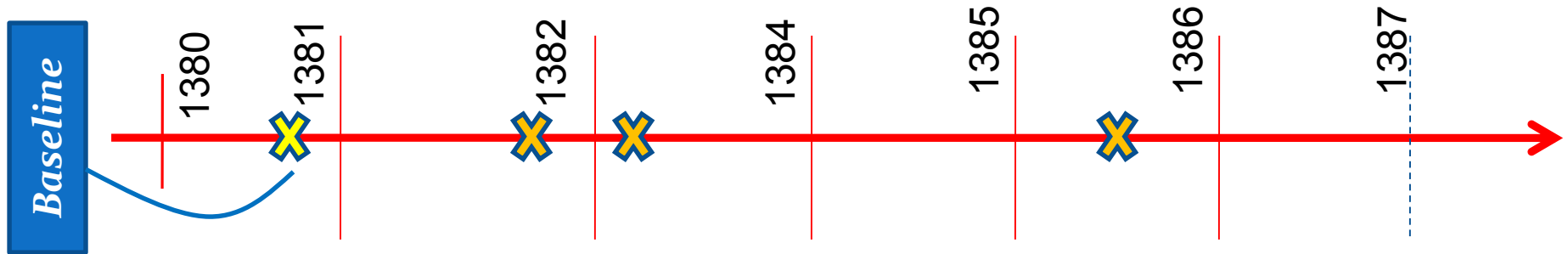


Continuous Follow-up for NCD events

TLGS Cohort



Outcomes with defined Time (CVD, Cancer, severe complications of diabetes)



Time to event (It's important to find First outcome)

CVD & CHD incidence

(in median of 7.7-year)

CVD

Male

No. = 321

13/1000

Person year

Female

No. = 215

7.5/1000

Person year

CHD

Male

No. = 279

12.6/1000

Person year

Female

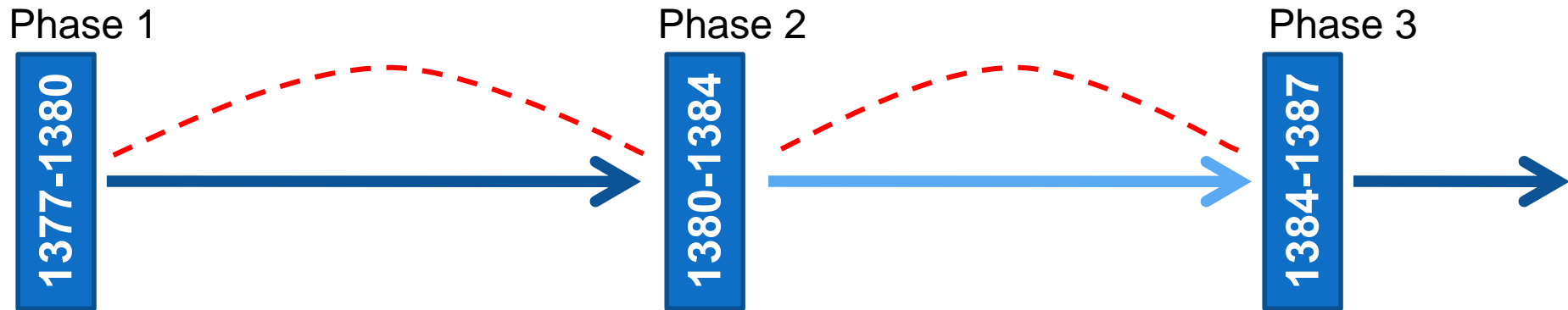
No. = 193

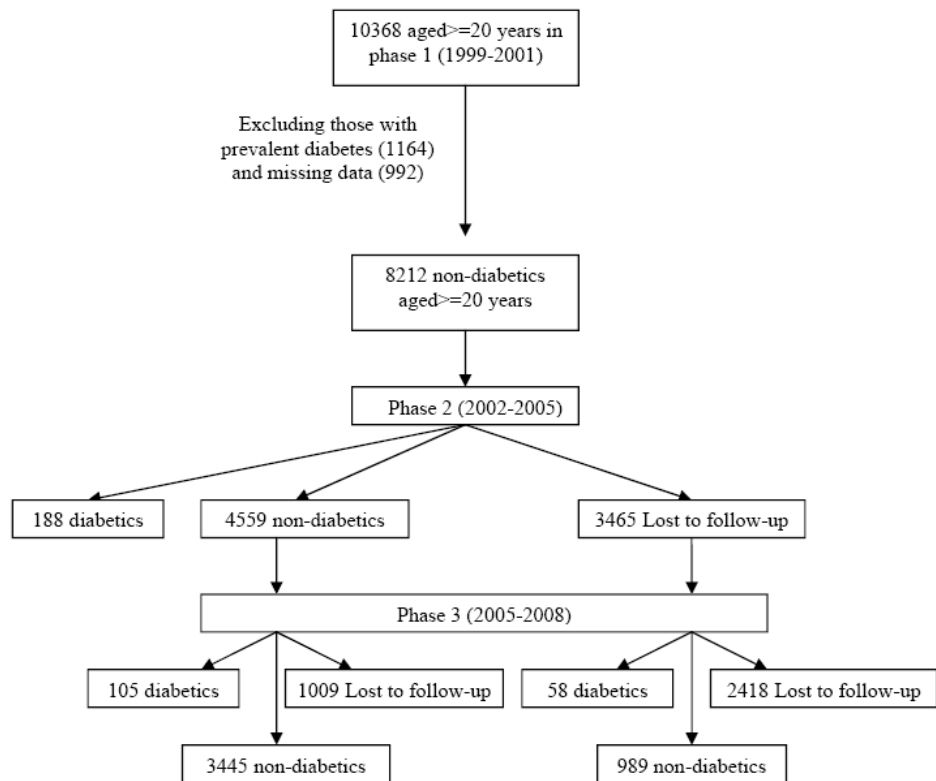
6.7/1000

Person year

Interval censored outcomes

(Diabetes, Hypertension, Hyperlipidemia, Metabolic Syndrome, ...)





Phase 1

1377-1380

188
Diabetes

Phase 2

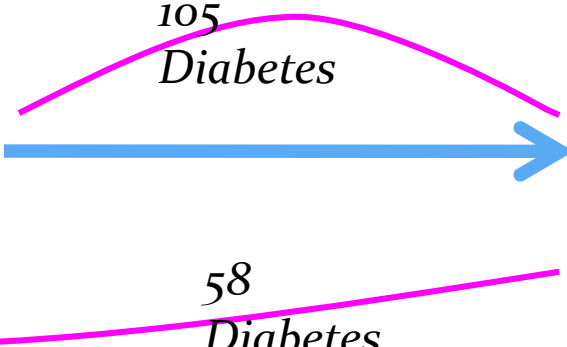
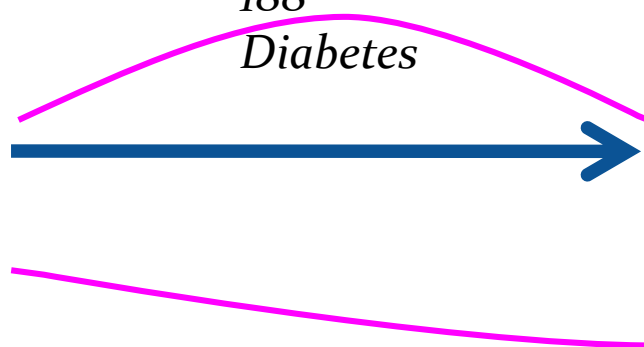
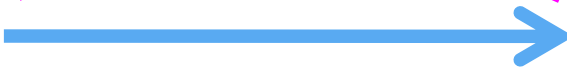
1380-1384

105
Diabetes

Phase 3

1384-1387

58
Diabetes



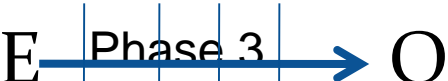
TLGS Cohort

Cohorts

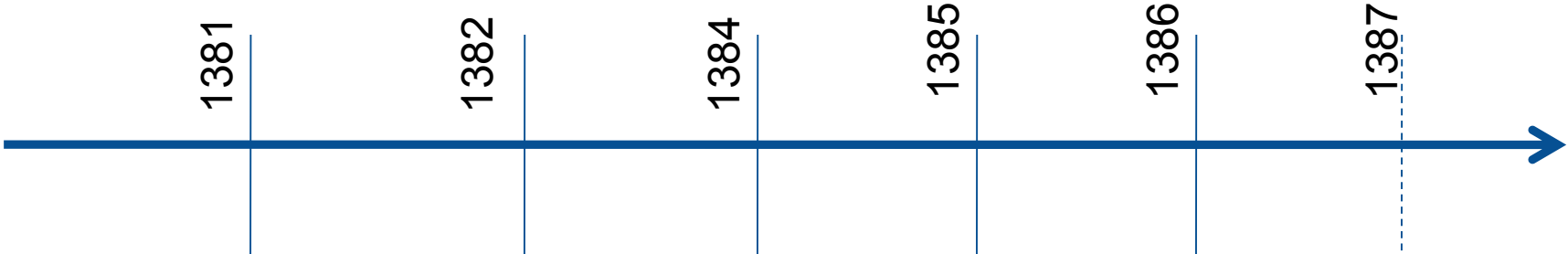
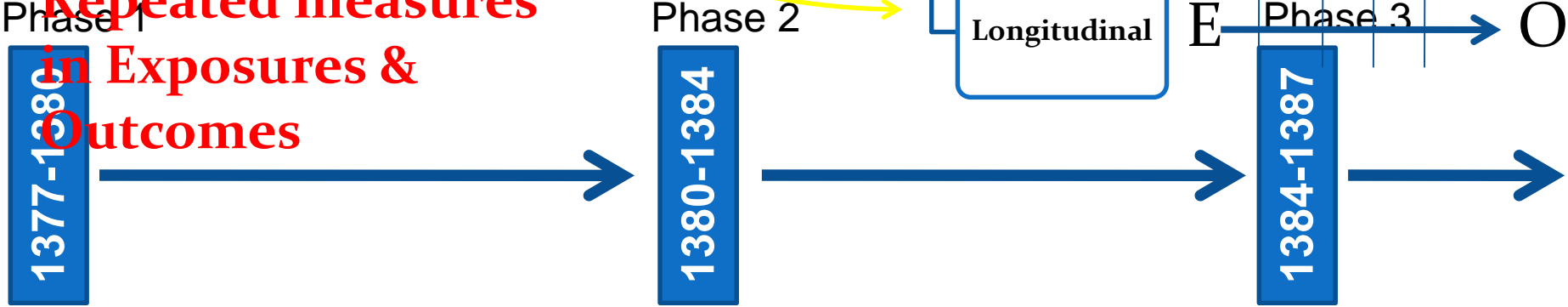
Life table Type



Longitudinal



Repeated measures in Exposures & Outcomes



Follow up

به نام خدا

Clinical Prediction Models

Based on the “Ewout W. Steyerberg’s” book

1st session

Introduction

Davood Khalili, MD, MPH, PhD

Department of Biostatistics and Epidemiology

Research Institute for Endocrine Sciences

Shahid Beheshti University of Medical Sciences



از توجه شما
سپاسگزارم