# The Dutch model for health manpower planning – Data requirements

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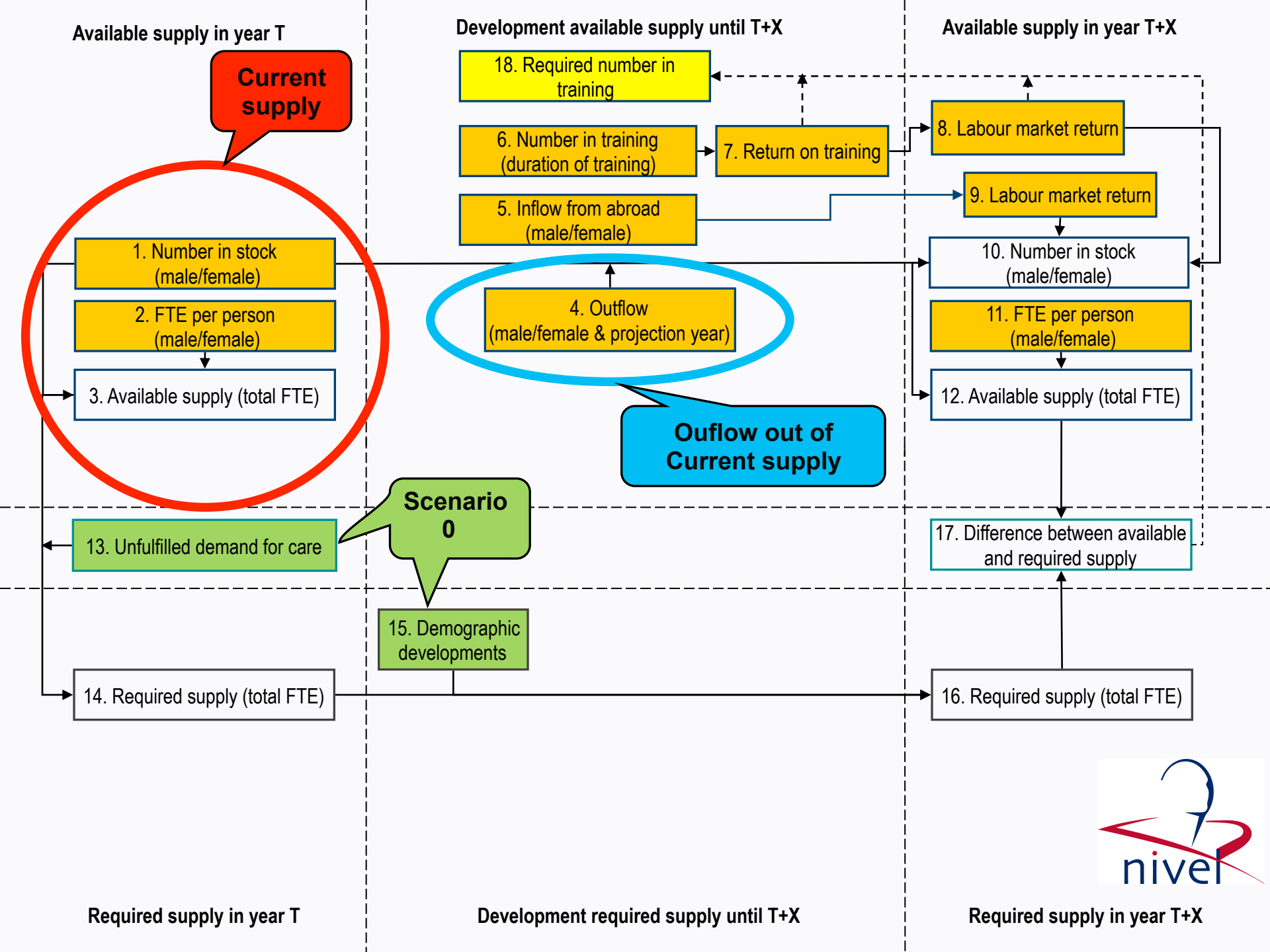
# Outline of the presentation

- Step by step overview of the principal parameters of the Dutch planningmodel
- Data requirements for the current supply
- Data requirements for the outflow out of the current supply


Available supply in year T
Development available supply until T+X
Available supply in year T+X
Current supply
18. Required number in training
6. Number in training (duration of training)
7. Return on training
8. Labour market return
5. Inflow from abroad (male/female)
9. Labour market return
1. Number in stock (male/female)
10. Number in stock (male/female)
2. FTE per person (male/female)
4. Outflow (male/female & projection year)
11. FTE per person (male/female)
3. Available supply (total FTE)
12. Available supply (total FTE)
Ouflow out of Current supply
Scenario 0
13. Unfulfilled demand for care
17. Difference between available and required supply
15. Demographic developments
14. Required supply (total FTE)
16. Required supply (total FTE)
Required supply in year T
Development required supply until T+X
Required supply in year T+X

# Outline of the presentation

- ✓ Step by step overview of the principal parameters of the Dutch planningmodel

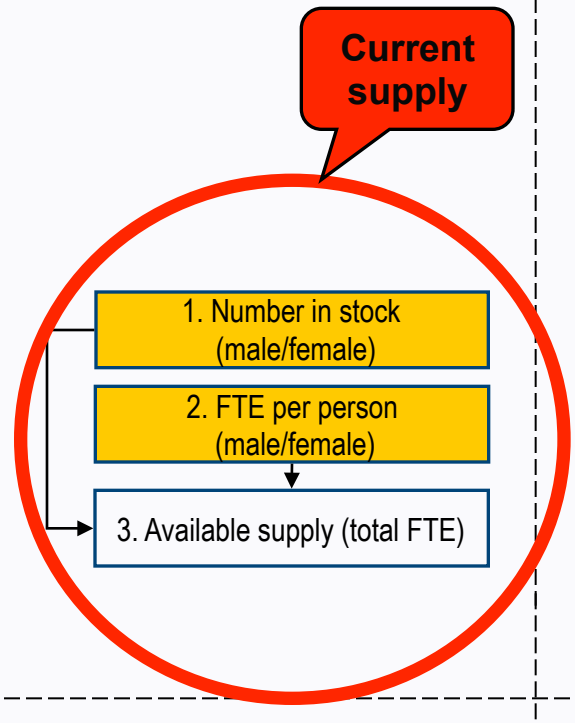
- ➢ Data requirements for the current supply

- Data requirements for the outflow out of the current supply

Available supply in year T

Development available supply until T+X

Available supply in year T+X




Required supply in year T

Development required supply until T+X

Required supply in year T+X

# Data requirements for the current supply

- “Current” number of professionally active professionals by gender
  - Preferably based on registry data or large scale survey
  - Preferably as recent as possible (or with some update)
  - Preferably as “valid” as possible (complete; etc.)
  - Breakdown by gender is important for gender related differences in working time

- “Current” number of FTE per professional by gender
  - With basically the same requirements as for the current number of professionals (and almost always based on the same source)

**Professionaly active** (number of active professionals, derived from current labour statistics)

"Now"

| Male | Female | Total |
|---|---|---|
| 455 | 690 | 1.145 |

**FTE / person** (number of Full Time Equivalents per person, derived from current health labour statistics)

"Now"

| Male | Female | Total |
|---|---|---|
| 0,90 | 0,70 | 0,78 |

**Total supply of care** (number of FTE, derived from labour statistics)

"Now"

| Male | Female | Total |
|---|---|---|
| 410 | 483 | 893 |

# Available Supplymodel

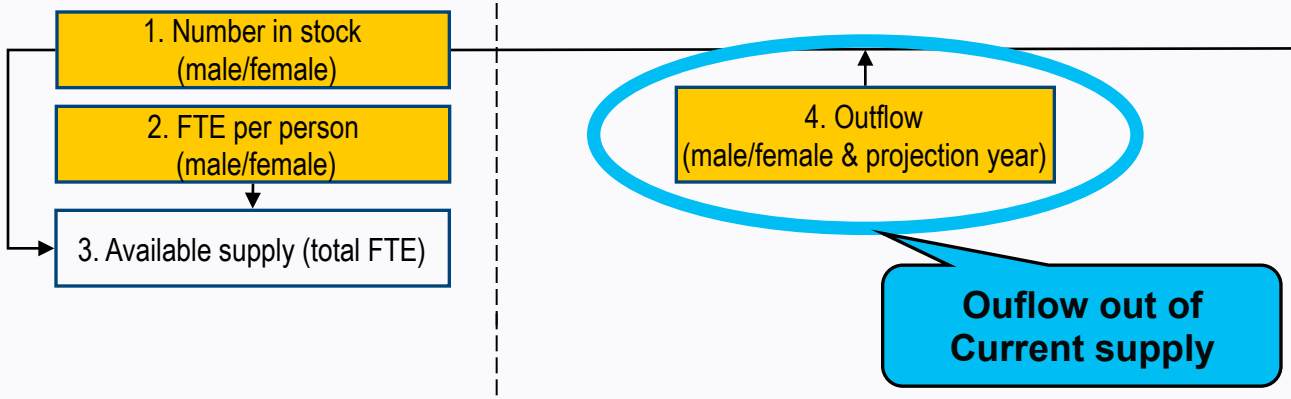
# Outline of the presentation

- ✓ Step by step overview of the principal parameters of the Dutch planningmodel
- ✓ Data requirements for the current supply
- ➢ Data requirements for the outflow out of the current supply

Available supply in year T

Development available supply until T+X

Available supply in year T+X




Required supply in year T

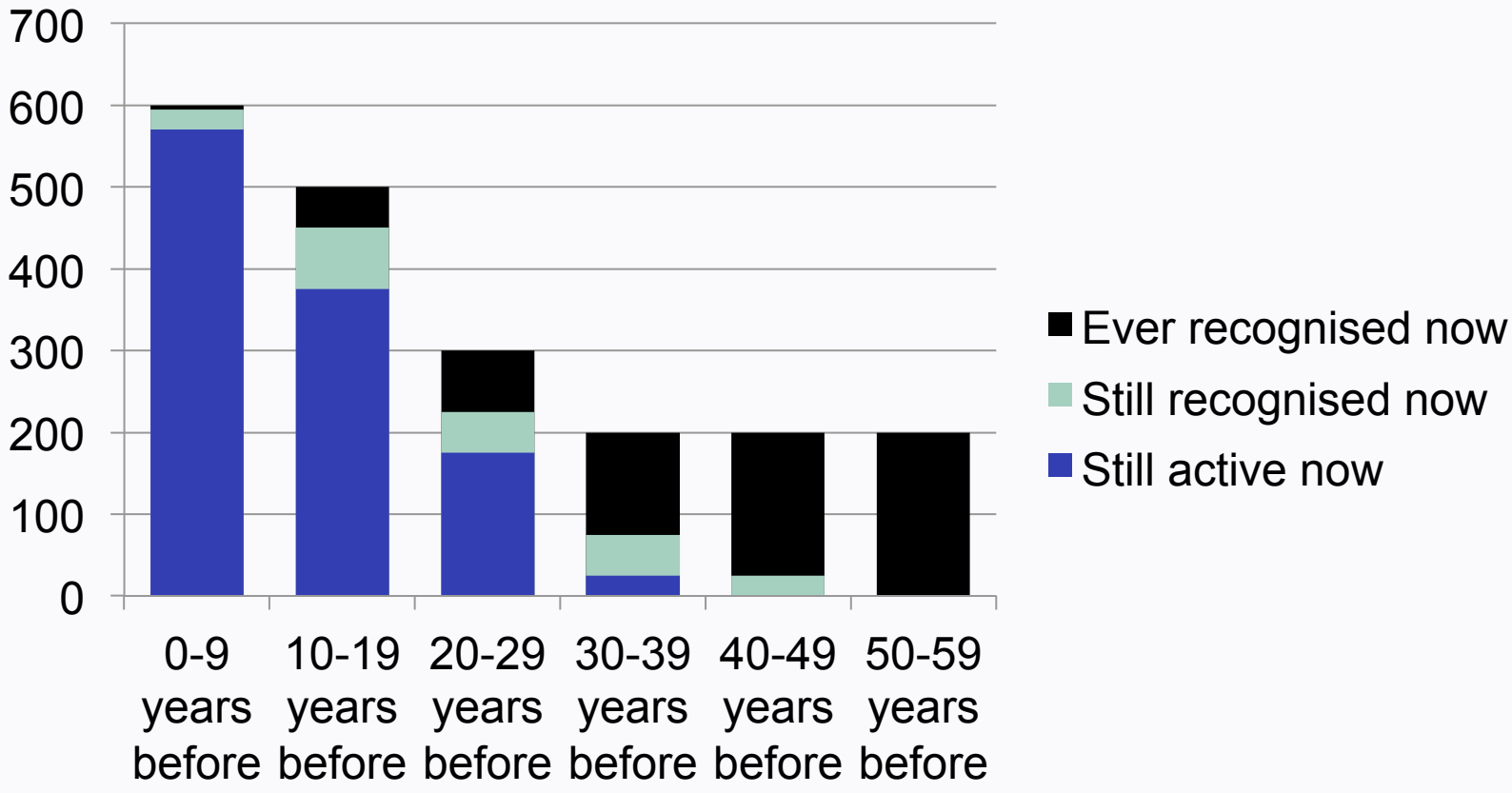
Development required supply until T+X

Required supply in year T+X

# Data requirements for the outflow out of the current supply: most common data

- "Current" number of professionally active professionals by gender and 5-year registration period
  - Based on the same source from which the current supply by gender is derived
- "Current" number of licensed professionals by gender and 5-year registration period
  - For display purposes only
- "Current" number of "ever" licensed professionals by gender and 5-year registration period
  - For calculating the % still active
- For simplicity: a 10-year registration period is now

# “Current” number of active and licensed (now and ever) professionals by registration period



**Professionaly active** (number of active professionals per registration period, derived from current labour statistics)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 190 | 380 | 570 |
| 10-19 years before | 150 | 225 | 375 |
| 20-29 years before | 100 | 75 | 175 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 455 | 690 | 1.145 |

# Data for
# Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per registration period, derived from labour statistics, including persons not recognised any more)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 200 | 400 | 600 |
| 10-19 years before | 200 | 300 | 500 |
| 20-29 years before | 150 | 150 | 300 |
| 30-39 years before | 100 | 100 | 200 |
| 40-49 years before | 100 | 100 | 200 |
| Total | 750 | 1.050 | 1.800 |

**Professionaly active** (number of active professionals per registration period, derived from current labour statistics)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 190 | 380 | 570 |
| 10-19 years before | 150 | 225 | 375 |
| 20-29 years before | 100 | 75 | 175 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 455 | 690 | 1.145 |

**% Still active** (% still active per registration period, derived from current labour statistics)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 95,0% | 95,0% | 95,0% |
| 10-19 years before | 75,0% | 75,0% | 75,0% |
| 20-29 years before | 66,7% | 50,0% | 58,3% |
| 30-39 years before | 15,0% | 10,0% | 12,5% |
| 40-49 years before | 0,0% | 0,0% | 0,0% |
| Total | 60,7% | 65,7% | 63,6% |

Data and some calculation for
Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per registration period, derived from labour statistics, including persons not recognised anymore)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 200 | 400 | 600 |
| 10-19 years before | 200 | 300 | 500 |
| 20-29 years before | 150 | 150 | 300 |
| 30-39 years before | 100 | 100 | 200 |
| 40-49 years before | 100 | 100 | 200 |
| Total | 750 | 1.050 | 1.800 |

**Professionaly active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| | "Now" | | |
|---|---|---|---|
| Recognisition period | Male | Female | Total |
| 0-9 years before | 190 | 380 | 570 |
| 10-19 years before | 150 | 225 | 375 |
| 20-29 years before | 100 | 75 | 175 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 455 | 690 | 1.145 |

| | "In 10 years" | | | | | "In 20 years" | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| R.P. in 10 years | Male | Female | Total | Outflow | R.P. in 20 years | Male | Female | Total | Outflow |
| 10-19 y. before | 150 | 300 | 450 | -21,1% | 20-29 y. before | 133 | 200 | 333 | -41,5% |
| 20-29 y. before | 133 | 150 | 283 | -24,4% | 30-39 y. before | 30 | 30 | 60 | -84,0% |
| 30-39 y. before | 23 | 15 | 38 | -78,6% | 40-49 y. before | 0 | 0 | 0 | -100,0% |
| 40-49 y. before | 0 | 0 | 0 | -100,0% | 50-59 y. before | 0 | 0 | 0 | -100,0% |
| 50-59 y. before | 0 | 0 | 0 | x | 60-69 y. before | 0 | 0 | 0 | x |
| | 306 | 465 | 771 | -32,7% | | 163 | 230 | 393 | -65,6% |
| | -32,8% | -32,6% | | | | -64,1% | -66,7% | | |

**% Still active** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| | "Now" | | |
|---|---|---|---|
| Recognisition period | Male | Female | Total |
| 0-9 years before | 95,0% | 95,0% | 95,0% |
| 10-19 years before | 75,0% | 75,0% | 75,0% |
| 20-29 years before | 66,7% | 50,0% | 58,3% |
| 30-39 years before | 15,0% | 10,0% | 12,5% |
| 40-49 years before | 0,0% | 0,0% | 0,0% |
| Total | 60,7% | 65,7% | 63,6% |

Outflowmodel using current % still active

**Ever recognised** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised anymore)

| | "Now" | | |
|---|---|---|---|
| Recognisition period | Male | Female | Total |
| 0-9 years before | 200 | 400 | 600 |
| 10-19 years before | 200 | 300 | 500 |
| 20-29 years before | 150 | 150 | 300 |
| 30-39 years before | 100 | 100 | 200 |
| 40-49 years before | 100 | 100 | 200 |
| Total | 750 | 1.050 | 1.800 |

**Professionaly active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 190 | 380 | 570 |
| 10-19 years before | 150 | 225 | 375 |
| 20-29 years before | 100 | 75 | 175 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 455 | 690 | 1.145 |

"In 10 years"

| R.P. in 10 years | Male | Female | Total | Outflow |
|---|---|---|---|---|
| 10-19 y. before | 150 | 300 | 450 | -21,1% |
| 20-29 y. before | 133 | 150 | 283 | -24,4% |
| 30-39 y. before | 23 | 15 | 38 | -78,6% |
| 40-49 y. before | 0 | 0 | 0 | -100,0% |
| 50-59 y. before | 0 | 0 | 0 | x |
| | 306 | 465 | 771 | -32,7% |
| | -32,8% | -32,6% | | |

"In 20 years"

| R.P. in 20 years | Male | Female | Total | Outflow |
|---|---|---|---|---|
| 20-29 y. before | 133 | 200 | 333 | -41,5% |
| 30-39 y. before | 30 | 30 | 60 | -84,0% |
| 40-49 y. before | 0 | 0 | 0 | -100,0% |
| 50-59 y. before | 0 | 0 | 0 | -100,0% |
| 60-69 y. before | 0 | 0 | 0 | x |
| | 163 | 230 | 393 | -65,6% |
| | -64,1% | -66,7% | | |

**% Still active** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 95,0% | 95,0% | 95,0% |
| 10-19 years before | 75,0% | 75,0% | 75,0% |
| 20-29 years before | 66,7% | 50,0% | 58,3% |
| 30-39 years before | 15,0% | 10,0% | 12,5% |
| 40-49 years before | 0,0% | 0,0% | 0,0% |
| Total | 60,7% | 65,7% | 63,6% |

**Ever recognised** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised anymore)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 200 | 400 | 600 |
| 10-19 years before | 200 | 300 | 500 |
| 20-29 years before | 150 | 150 | 300 |
| 30-39 years before | 100 | 100 | 200 |
| 40-49 years before | 100 | 100 | 200 |
| Total | 750 | 1.050 | 1.800 |

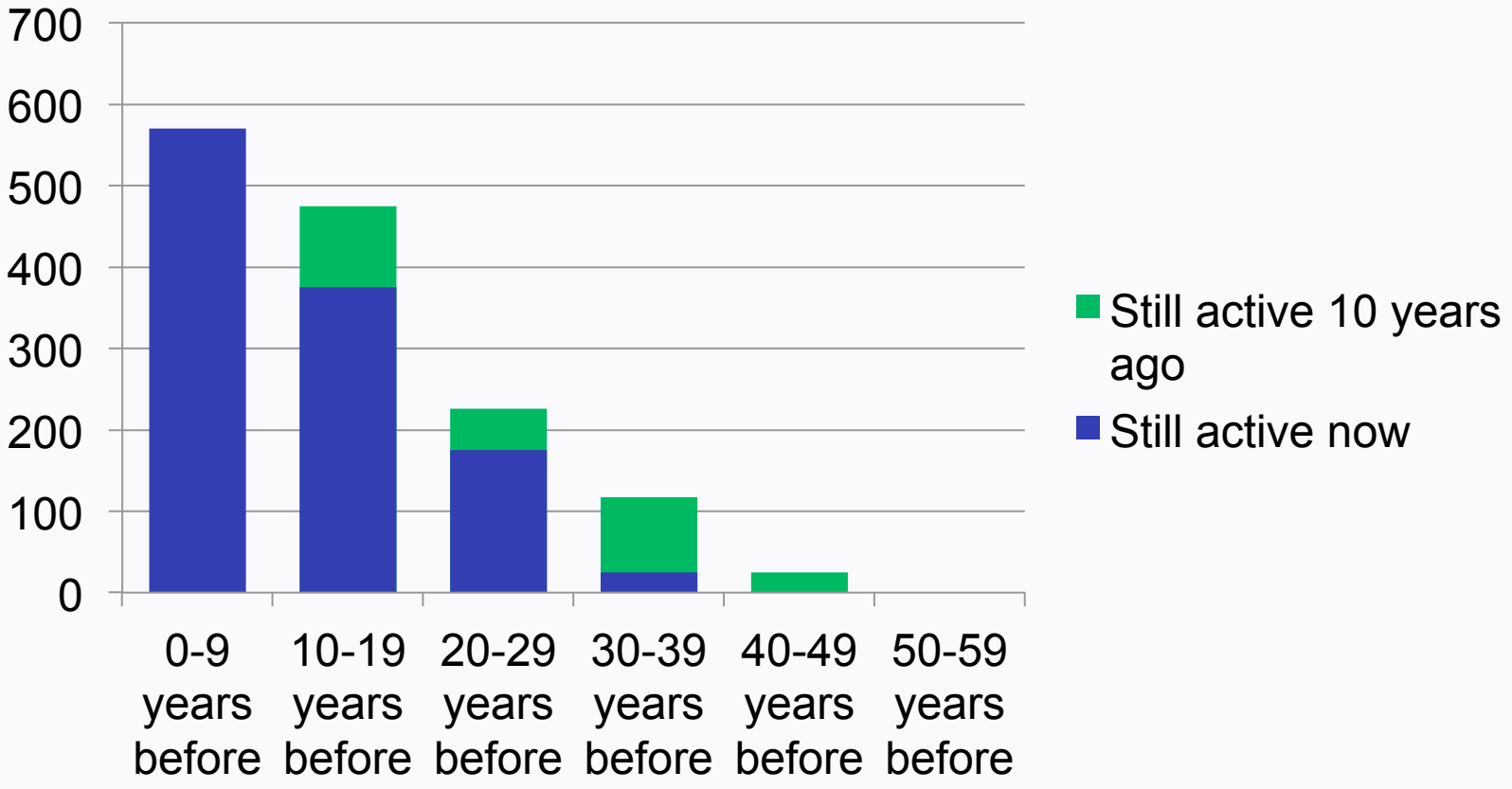
Outflowmodel using current % still active

# Data requirements for the outflow out of the current supply: most preferred data

- "Current" number of professionally active professionals by gender and 5-year registration period
  - Based on the same source from which the current supply by gender is derived
- "Historical" number of professionally active professionals by gender and 5-year registration period, 5 and 10 years ago
  - For calculating the % still active after 5 or 10 years

- For simplicity: a 10-year registration period is now used

# “Current” and “Historical” number of active professionals by registration period



**Professionaly active** (number of active professionals, derived from current labour statistics)

| Recognisition period | "Now" Male | Female | Total | |
|---|---|---|---|---|
| 0-9 years before | 190 | 380 | 570 | "current" number of active professinals who were recognised 0-9 years before "now" |
| 10-19 years before | 150 | 225 | 375 | "current" number of active professinals who were recognised 10-19 years before "now" |
| 20-29 years before | 100 | 75 | 175 | "current" number of active professinals who were recognised 20-29 years before "now" |
| 30-39 years before | 15 | 10 | 25 | "current" number of active professinals who were recognised 30-39 years before "now" |
| 40-49 years before | 0 | 0 | 0 | "current" number of active professinals who were recognised 40-49 years before "now" |
| Total | 455 | 690 | 1.145 | "current" number of active professinals who were recognised 0-49 years before "now" |

# Data for
# Outflowmodel using current % still active after 10 years

**Pr. Act. 10 y. before** (number of ever recognised professionals, derived from historical labour statistics, including persons not recognised anymore)

| Rec.per. 10 y. before | "10 years ago" Male | Female | Total | |
|---|---|---|---|---|
| not yet recognised | 200 | 400 | 600 | "historical" number of active professinals who were recognised 0-9 years before "now" |
| 0-9 years before | 190 | 285 | 475 | "historical" number of active professinals who were recognised 10-19 years before "now" |
| 10-19 years before | 113 | 113 | 226 | "historical" number of active professinals who were recognised 20-29 years before "now" |
| 20-29 years before | 67 | 50 | 117 | "historical" number of active professinals who were recognised 30-39 years before "now" |
| 30-39 years before | 15 | 10 | 25 | "historical" number of active professinals who were recognised 40-49 years before "now" |
| 40-49 years before | 0 | 0 | 0 | "historical" number of active professinals who were recognised 50-59 years before "now" |
| Total | 385 | 458 | 843 | "historical" number of active professinals who were recognised 10-59 years before "now" |

**Professionaly active** (number of active professionals, derived from current labour statistics)

"Now"

| Recognisition period | Male | Female | Total |
|---|---|---|---|
| 0-9 years before | 190 | 380 | 570 |
| 10-19 years before | 150 | 225 | 375 |
| 20-29 years before | 100 | 75 | 175 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 455 | 690 | 1.145 |

**% Still act. after 10 y.** (% still active per year, derived from current and historical labour statistics)

"Now versus 10 year ago"

| Rec.per. 10 y. before | Male | Female | Total | |
|---|---|---|---|---|
| not yet recognised | 95,0% | 95,0% | 95,0% | chance of being active "now" for professinals who were recognised 0-9 years before "now" ("labour market return after 10 years") |
| 0-9 years before | 78,9% | 78,9% | 78,9% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 10-19 years before "now" |
| 10-19 years before | 88,5% | 66,4% | 77,4% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 20-29 years before "now" |
| 20-29 years before | 22,4% | 20,0% | 21,4% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 30-39 years before "now" |
| 30-39 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 40-49 years before "now" |
| 40-49 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 50-59 years before "now" |
| Total | 68,8% | 67,7% | 68,2% | |

**Pr. Act. 10 y. before** (number of ever recognised professionals, derived from historical labour statistics, including persons not recognised anymore)

"10 years ago"

| Rec.per. 10 y. before | Male | Female | Total |
|---|---|---|---|
| not yet recognised | 200 | 400 | 600 |
| 0-9 years before | 190 | 285 | 475 |
| 10-19 years before | 113 | 113 | 226 |
| 20-29 years before | 67 | 50 | 117 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 385 | 458 | 843 |

Data and calculations of chances of being still active for
Outflowmodel using current % still active after 10 years

**Professionaly active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| | "Now" | | | "In 10 years" | | | | | "In 20 years" | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Recognisition period | Male | Female | Total | Then | Male | Female | Total | Outflow | Then | Male | Female | Total | Outflow |
| 0-9 years before | 190 | 380 | 570 | 10-19 | 150 | 300 | 450 | -21,1% | 20-29 | 133 | 199 | 332 | -41,8% |
| 10-19 years before | 150 | 225 | 375 | 20-29 | 133 | 149 | 282 | -24,8% | 30-39 | 30 | 30 | 60 | -84,1% |
| 20-29 years before | 100 | 75 | 175 | 30-39 | 22 | 15 | 37 | -78,6% | 40-49 | 0 | 0 | 0 | -100,0% |
| 30-39 years before | 15 | 10 | 25 | 40-49 | 0 | 0 | 0 | -100,0% | 50-59 | 0 | 0 | 0 | -100,0% |
| 40-49 years before | 0 | 0 | 0 | 50-59 | 0 | 0 | 0 | x | 60-69 | 0 | 0 | 0 | x |
| Total | 455 | 690 | 1.145 | | 305 | 464 | 769 | -32,8% | | 162 | 229 | 391 | -65,8% |
| | | | | | -32,9% | -32,7% | | | | -64,3% | -66,8% | | |

**% Still act. after 10 y.** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| | "Now versus 10 year ago" | | | |
|---|---|---|---|---|
| Rec.per. 10 y. before | Male | Female | Total | |
| not yet recognised | 95,0% | 95,0% | 95,0% | chance of being active "now" for professinals who were recognised 0-9 years before "now" ("labour market return after 10 years") |
| 0-9 years before | 78,9% | 78,9% | 78,9% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 10-19 years before "now" |
| 10-19 years before | 88,5% | 66,4% | 77,4% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 20-29 years before "now" |
| 20-29 years before | 22,4% | 20,0% | 21,4% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 30-39 years before "now" |
| 30-39 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 40-49 years before "now" |
| 40-49 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 50-59 years before "now" |
| Total | 68,8% | 67,7% | 68,2% | |

**Pr. Act. 10 y. before** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised anymore)

| | "10 years ago" | | |
|---|---|---|---|
| Rec.per. 10 y. before | Male | Female | Total |
| not yet recognised | 200 | 400 | 600 |
| 0-9 years before | 190 | 285 | 475 |
| 10-19 years before | 113 | 113 | 226 |
| 20-29 years before | 67 | 50 | 117 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 385 | 458 | 843 |

Outflowmodel using current % still active after 10 years

**Professionaly active** (number of active professionals per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| Recognisition period | "Now" Male | Female | Total | Then | "In 10 years" Male | Female | Total | Outflow | Then | "In 20 years" Male | Female | Total | Outflow |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-9 years before | 190 | [illegible] | [illegible] | [illegible] | 150 | [illegible] | [illegible] | [illegible] | [illegible] | 133 | 199 | 332 | -41,8% |
| 10-19 years before | 150 | 225 | 375 | 20-29 | 133 | 149 | 282 | -24,8% | 30-39 | 30 | 30 | 60 | -84,1% |
| 20-29 years before | 100 | 75 | 175 | 30-39 | 22 | 15 | 37 | -78,6% | 40-49 | 0 | 0 | 0 | -100,0% |
| 30-39 years before | 15 | 10 | 25 | 40-49 | 0 | 0 | 0 | -100,0% | 50-59 | 0 | 0 | 0 | -100,0% |
| 40-49 years before | 0 | 0 | 0 | 50-59 | 0 | 0 | 0 | x | 60-69 | 0 | 0 | 0 | x |
| Total | 455 | 690 | 1.145 | | 305 | 464 | 769 | -32,8% | | 162 | 229 | 391 | -65,8% |
| | | | | | -32,9% | -32,7% | | | | -64,3% | -66,8% | | |

**% Still act. after 10 y.** (% still active per year, derived from current labour statistics and assuming constant future % activity per age/sex group)

| Rec.per. 10 y. before | "Now versus 10 years ago" Male | Female | Total | |
|---|---|---|---|---|
| not yet recognised | 95,0% | [illegible] | [illegible] | chance of being active "now" for professinals who were recognised 0-9 years before "now" ("labour market return after 10 years") |
| 0-9 years before | 78,9% | 78,9% | [illegible] | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 10-19 years before "now" |
| 10-19 years before | 88,5% | 66,4% | [illegible] | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 20-29 years before "now" |
| 20-29 years before | 22,4% | 20,0% | [illegible] | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 30-39 years before "now" |
| 30-39 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 40-49 years before "now" |
| 40-49 years before | 0,0% | 0,0% | 0,0% | chance of being active "now" for professinals who were active 10 years before "now" and were recognised 50-59 years before "now" |
| Total | 68,8% | [illegible] | 68,2% | |

**Pr. Act. 10 y. before** (number of ever recognised professionals per year, derived from labour statistics, including persons not recognised any more)

| Rec.per. 10 y. before | "10 years ago" Male | Female | Total |
|---|---|---|---|
| not yet recognised | 200 | 400 | 600 |
| 0-9 years before | 190 | 285 | 475 |
| 10-19 years before | 113 | 113 | 226 |
| 20-29 years before | 67 | 50 | 117 |
| 30-39 years before | 15 | 10 | 25 |
| 40-49 years before | 0 | 0 | 0 |
| Total | 385 | 458 | 843 |

Outflowmodel using current % still active after 10 years

**"Now" = 2013**

**Professionaly active (head count)**

"Now"

| Male | Female | Total |
|---|---|---|
| 455 | 690 | 1.145 |

**FTE / person**

"Now"

| Male | Female | Total |
|---|---|---|
| 0,90 | 0,70 | 0,78 |

**Total supply of care (FTE count)**

"Now"

| Male | Female | Total |
|---|---|---|
| 410 | 483 | 893 |

**Changes between "Now" and "Then"**

| | Male | Female | Total |
|---|---|---|---|
| Inflow in training / year | 0 | 0 | 0 |
| Return on training | 95,0% | 95,0% | x |

| | Male | Female | Total |
|---|---|---|---|
| Inflow from abroad / year | 0 | 0 | 0 |

Ouflow between "Now" and "Then"

| | Male | Female | Total |
|---|---|---|---|
| In 10 years | -32,9% | -32,7% | -32,8% |
| In 20 years | -64,3% | -66,8% | -100,0% |

**"Then" = 2023**

| | Male | Female | Total |
|---|---|---|---|
| Labour market return for Dutch training | 95,0% | 95,0% | x |

| | Male | Female | Total |
|---|---|---|---|
| Labour market return from abroad | 80,0% | 80,0% | x |

**Professionaly active (head count)**

"Then"

| | Male | Female | Total |
|---|---|---|---|
| Still active "Then" | 305 | 464 | 770 |
| From abroad and active "Then" | 0 | 0 | 0 |
| From Dutch training and active "Then" | 0 | 0 | 0 |
| Total active "Then" | 305 | 464 | 770 |
| Change in head count: | | | -32,8% |

**FTE / person**

"Then"

| Male | Female | Total |
|---|---|---|
| 0,90 | 0,70 | 0,78 |

**Total supply of care (FTE count)**

"Then"

| Male | Female | Total |
|---|---|---|
| 275 | 325 | 600 |
| Change in FTE count: | | -32,8% |

# Supplymodel, including inflow parameters