

# New monthly non-market healthcare output indicators in Finland

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# Agenda

**01**    **Significance of non-market healthcare**

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**02**    **Push for development from COVID-19**

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**03**    **New solutions**

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# Significance of non-market healthcare

# Non-market output compilation

- Current price values, sum of inputs

1.  $P1_{CP} = P2_{CP} + P51C_{CP} + D1_{CP}$

2.  $P132_{CP} = P1_{CP} - P11_{CP} - P12_{CP} - P131_{CP}$

- Volume, sum of **deflated** inputs

1.  $P1_{FP} = P2_{FP} + P51C_{FP} + D1_{FP}$

2.  $P132_{FP} = P1_{FP} - P11_{FP} - P12_{FP} - P131_{FP}$

- Or by extrapolating volume

1.  $P132_{FP} = P132_{CP(t-1)} * P132_{Vollnd}$

2.  $P1_{FP} = P132_{FP} + P11_{FP} + P12_{FP} + P131_{FP}$

# Volume indicators can relate to

## ■ Input

- E.g. labor input. Can't catch productivity change

## ■ Activity

- E.g. number of surgeries. Tells how inputs were used. Productivity interpretation challenging.

## ■ Outcome

- **ESA 2010 has rejected the outcome approach.**

## ■ Output

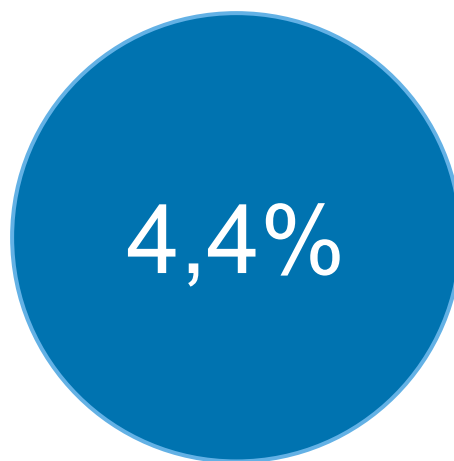
- Primary method. Can be hard to define unit of production.

# Significance of non-market healthcare in Finland

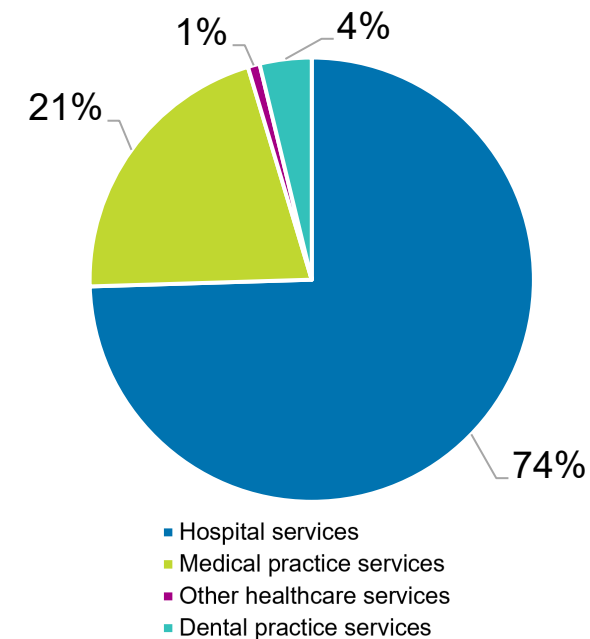
Non-market output of healthcare services



Proportion of GDP volume



Product shares



# ANA method in non-market healthcare

- Extrapolation of volume with an output indicator
- Separate indicator for three products:
  - Hospital services
  - Medical practice services
  - Dental practice services

# ANA method

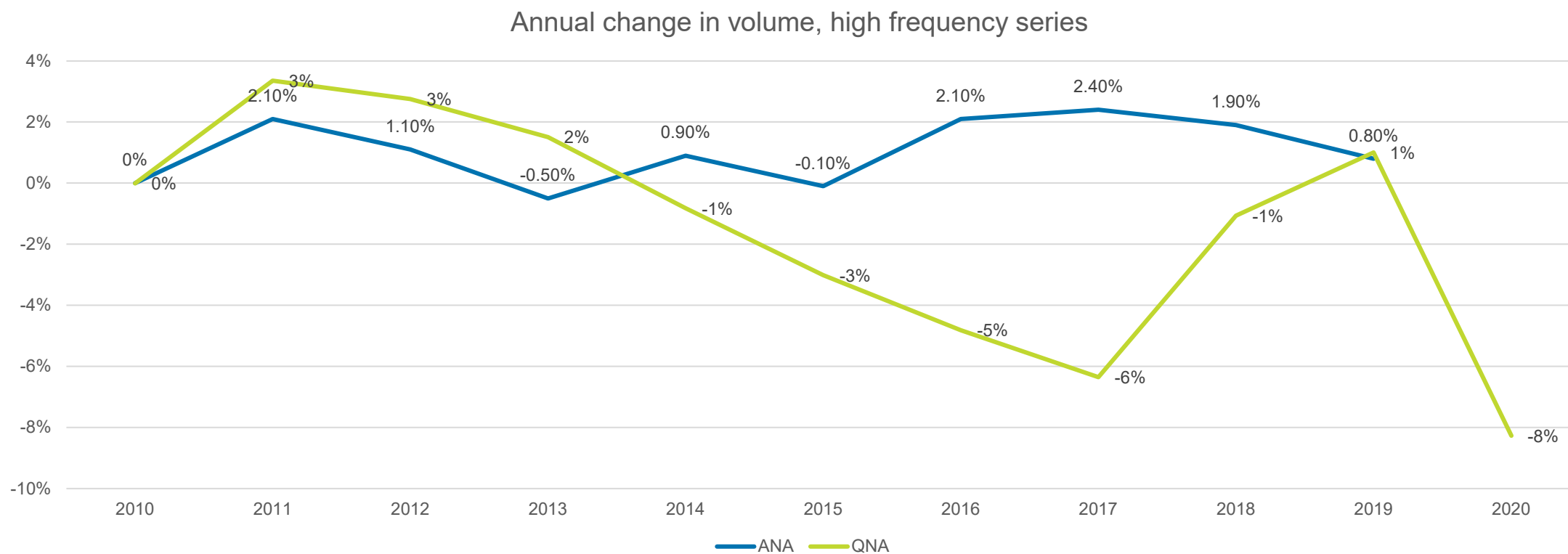
Product	Indicator	Stratification
Hospital services	DRG weighted episode output	DRG, region, hospital type, and more...
Medical practice services	Visits, periods of care	Service, profession, RUG
Dental practice services	Visits	Service, profession



# QNA method

- Value indicator
    - Based on Wage and salaries sum
  - Deflation with the Index of wage and salary earnings
  - Both current value indicator and the price information related to inputs
- Deflation of input(s)

# QNA forecast performance



# Push for development - COVID-19



# Impact of COVID-19

- Laws and regulations
- Non-critical care cut down
- Capacity directed for intensive care

# Impact of COVID-19

Phenomenom	Unit cost	Volume
Testing	+	+
Treatment	+	+
Vaccination	+	+
Cut down of other services	+	-
Changes in processes	??	??
Changes in people's behaviour	??	??
Total effect	???	???

# QNA weakness of current method

- Doesn't count for any direct or indirect effect that doesn't show in employee compensations
- Which leads to...
  - Unrealistic volume figures while waiting for ANA
  - Significant revision when ANA published



# QNA ideal non-market volume

- Realistic and accurate forecast for future annual change
- Gives quickly an updated image of the economy
- Shows the seasonal progress within the year
- Intertemporal and interspatial comparability



# Wishlist for new volume indicator

- **Quick...**but relevant
- **Simple...** rather than complicated
- **Long lasting solution...** over temporary
- **Requires only one person...**rather than a group of experts
- **Automated process...**over manual





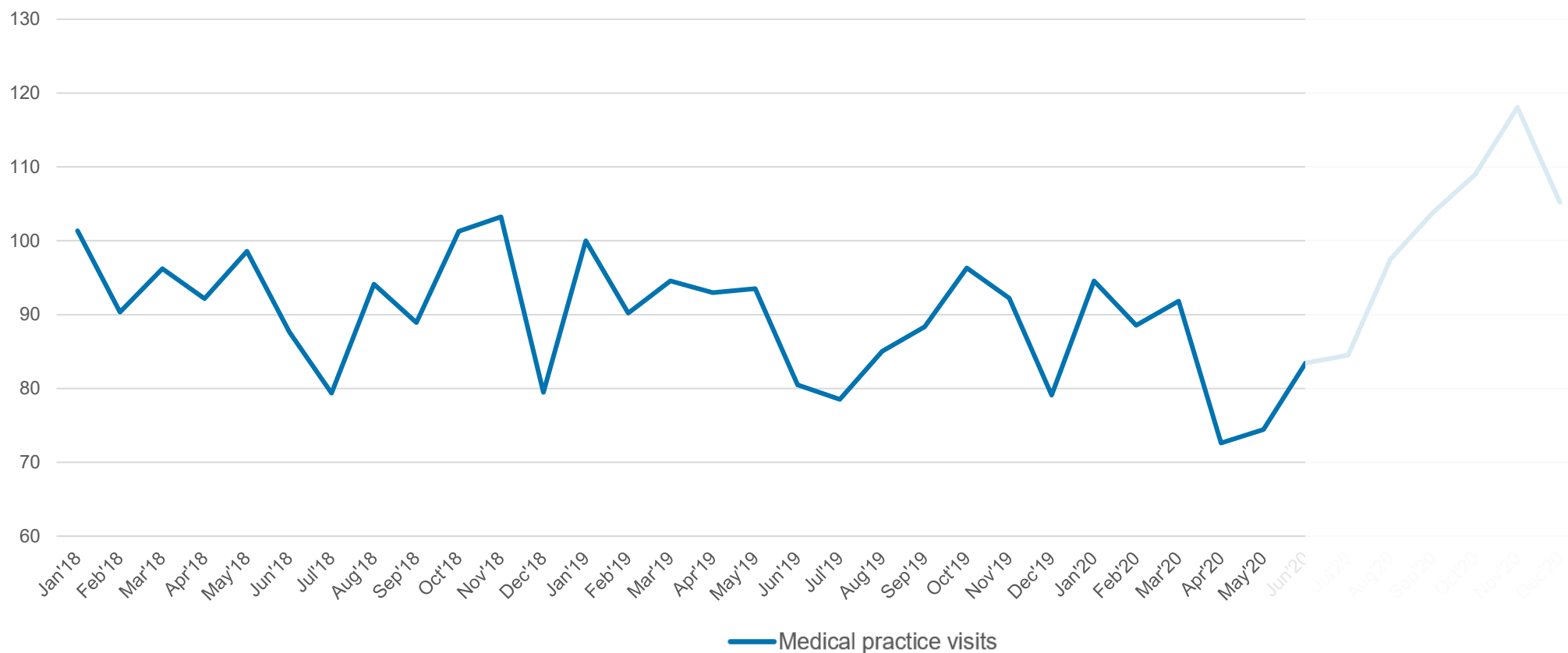
# Eurostat reminder

- No explicit quality adjustments
  - Remote work / school should not be adjusted explicitly
  - Quality changes can come through stratification
- Unused capacity does not contribute to the volume of output
  - Facilities, personnel, machinery

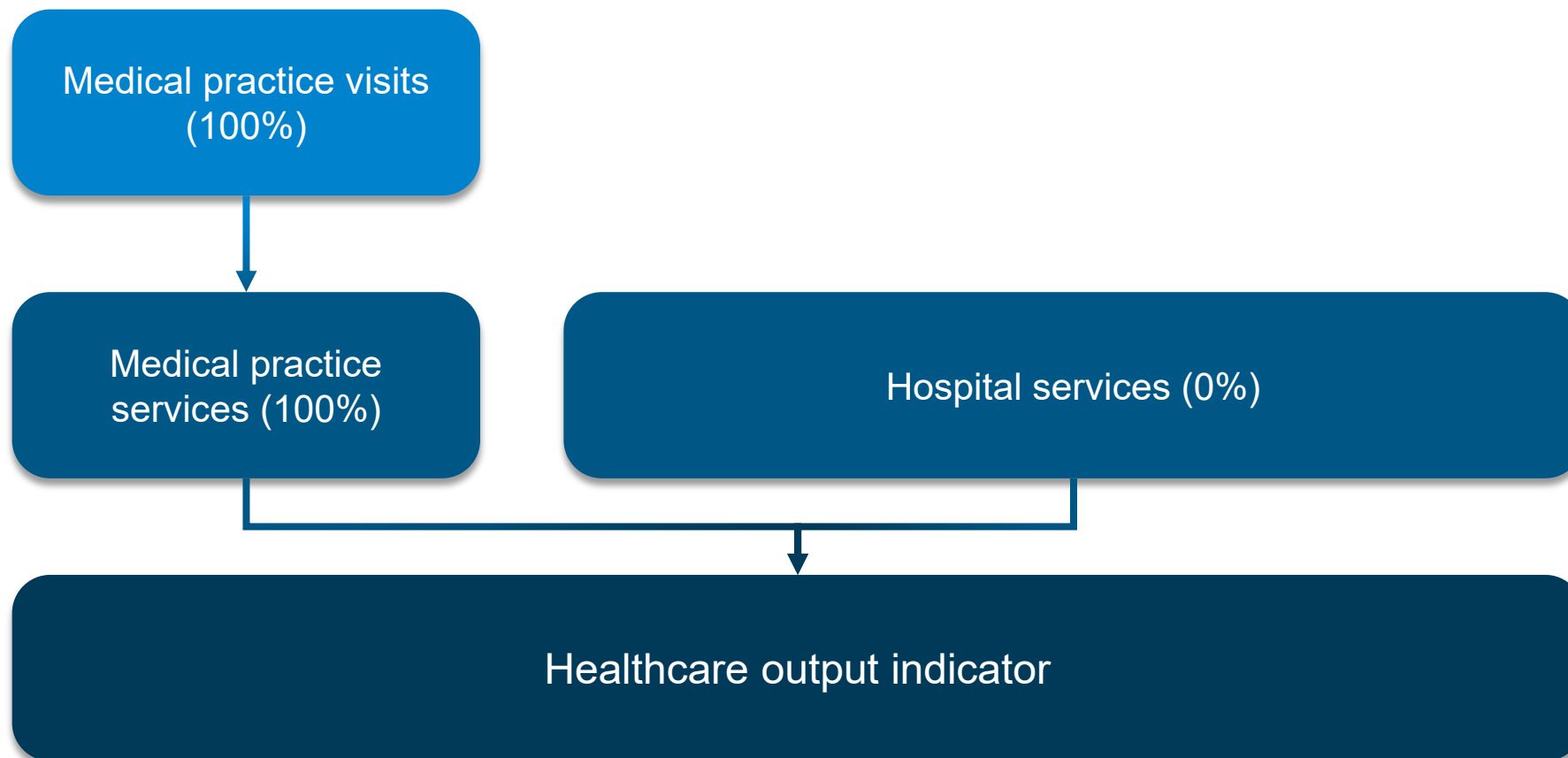


# New solutions

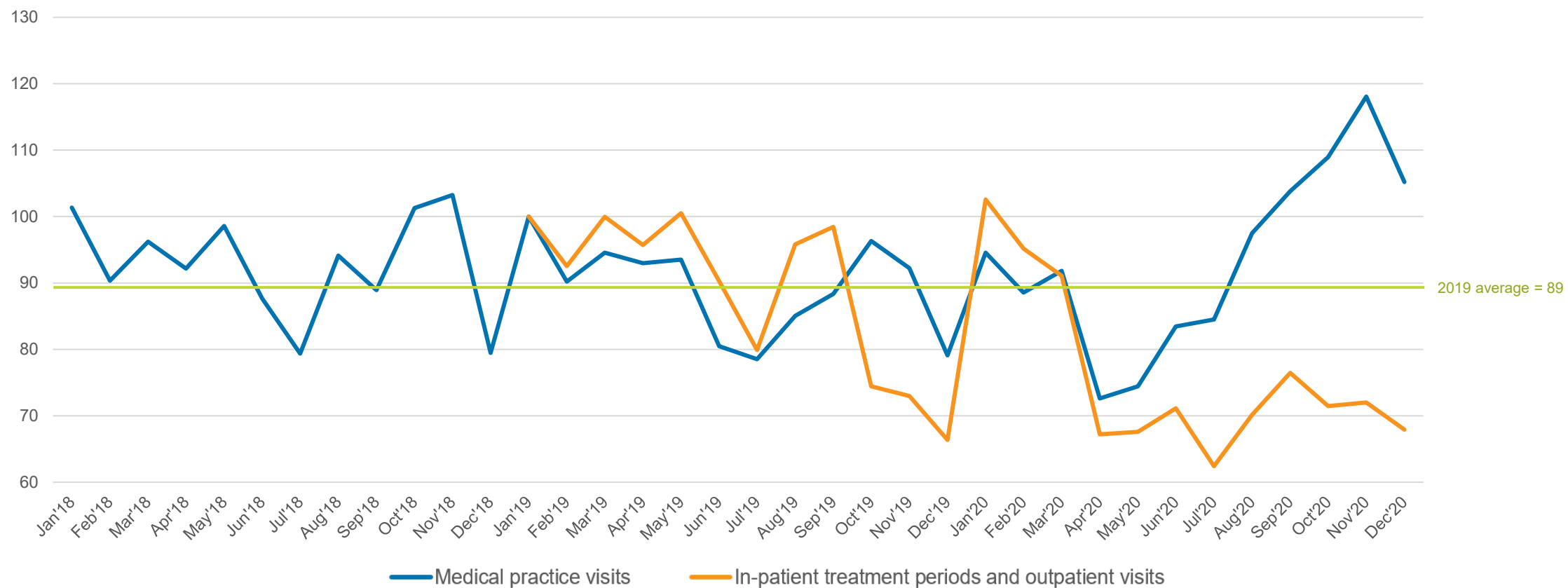
# Medical practice services



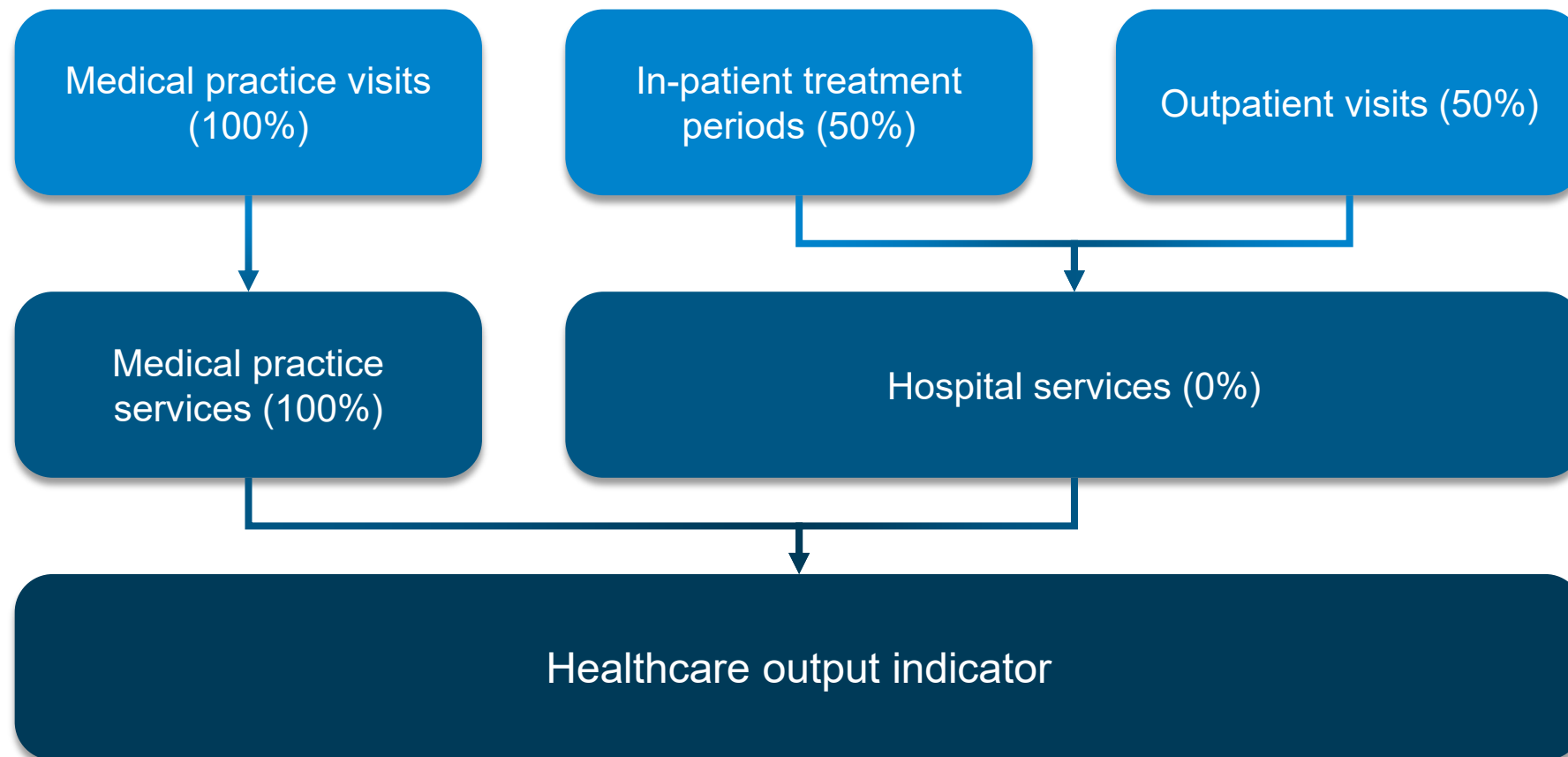
# New volume indicator for QNA



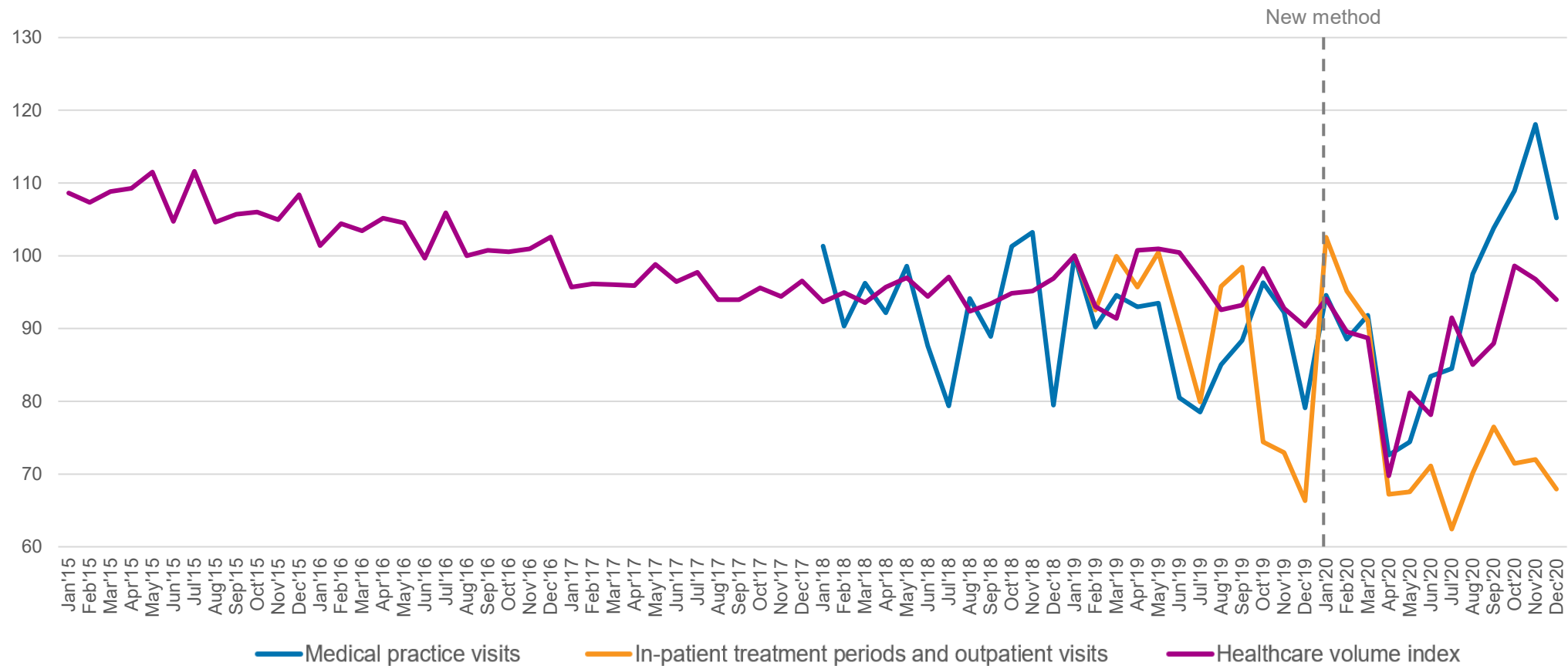
# Hospital services indicator



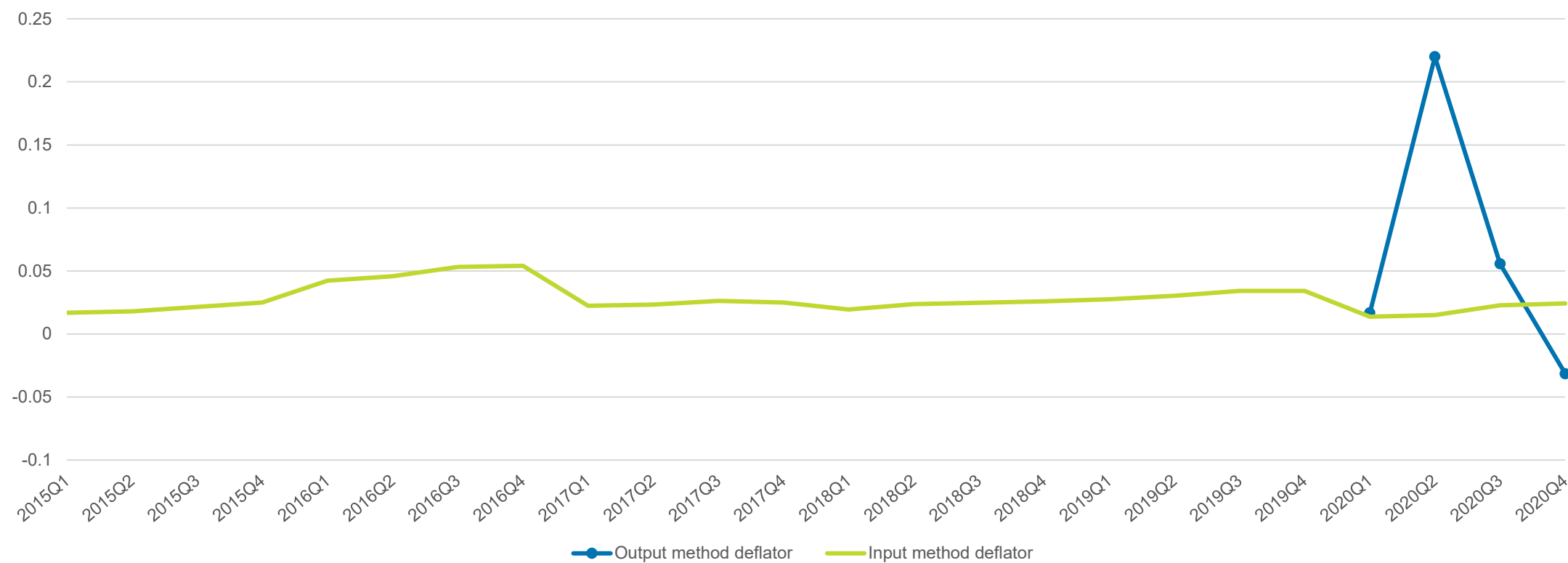
# New volume indicator for QNA v2



# Volume index Jan'19=100

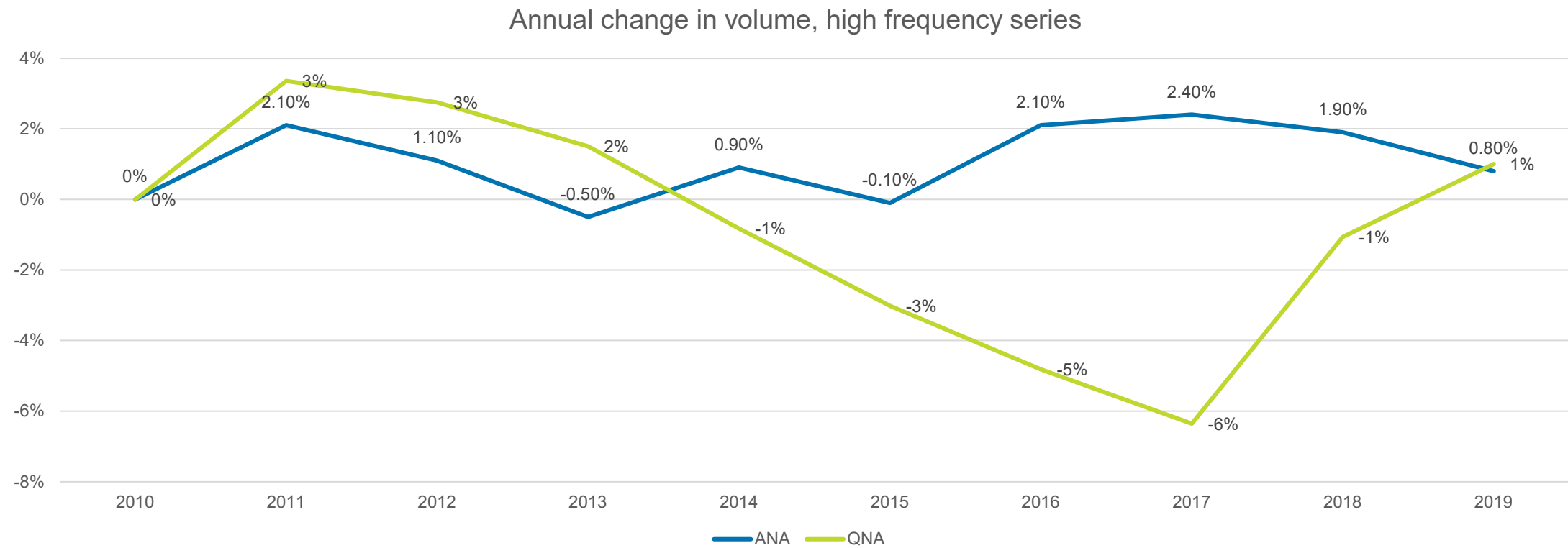


# Healthcare services, deflator of output

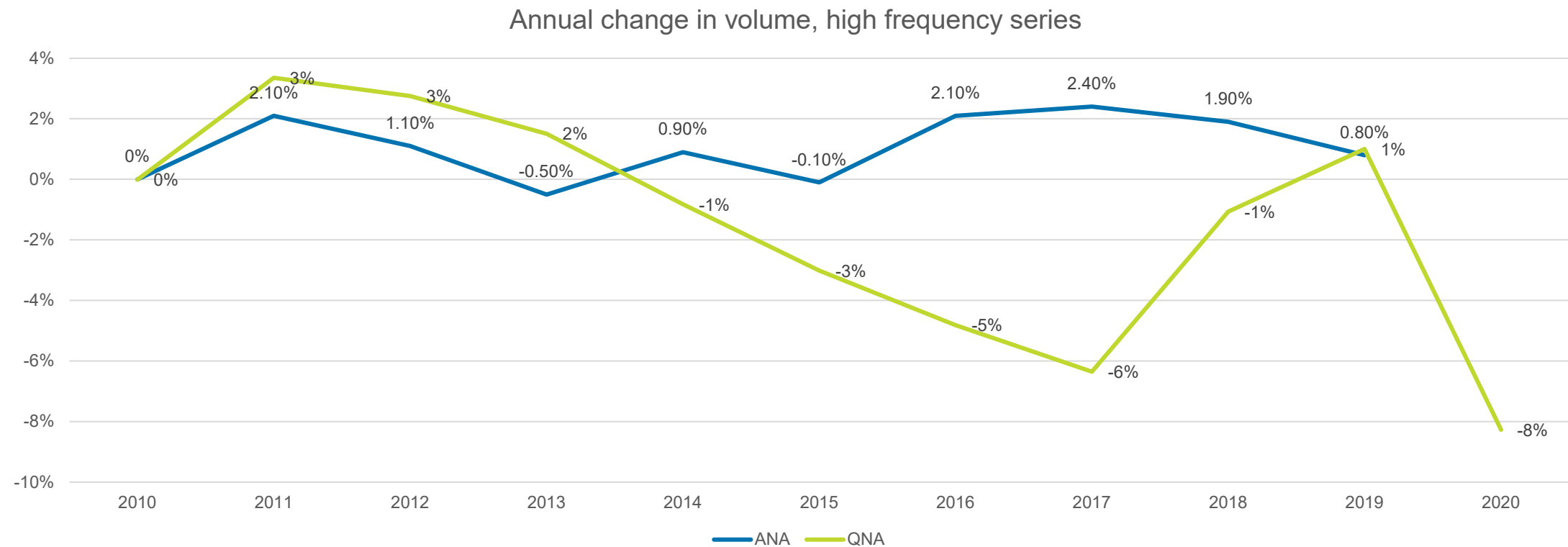




# 2020 volume forecast



# 2020 volume forecast



# Advantages of the new indicator

- Indicators similar to annual method
- Frequently updated source data
- Open data
  - JSON-stat format
  - Anybody can retrieve it with their statistical (or any) programming language of choice (eg. R, Python, SAS)
  - Automation
- Simple
- Long-term solution
- Low human risk factor

# Challenges

- Based on new data
  - Difficult to test backwards
- Main annual data source delayed, Finnish institute for health and welfare
  - Can't test yet the performance of monthly/quarterly indicators compared to the annual indicator

# Next steps

- Annual data hopefully in May 2021
- ANA this summer with the annual indicator
- Reviewing the performance of the new indicator
- 2020 DRG base + 2021 visit- and treatment period data = V3 of the volume indicator?



# Thank you!