

Sex and age differences in HCV notification trends

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Introduction

- In March 2016, subsidised direct-acting antiviral (DAA) treatment became available in Australia for all adults living with HCV.
- 100,680 people initiated DAA treatment between 2016-2022 (~60% coverage).
- As a result, there has been an estimated > 50% reduction in people living with hepatitis C in 2022, compared to 2015 (prevalence).
- The impact of DAA scale-up on HCV incidence, including among males and females, is less well understood.
- HCV notification trends can provide insight into the epidemic's trajectory, with trends among younger ages (15-24-year-olds) a proxy for incidence.

Aims

- Assess HCV notification (primary diagnoses) trends in Australia from 2009-2023.
- Assess the age and gender differences in HCV notification trends to infer potential changes in the HCV incidence during the DAA era and COVID-19 pandemic.

Methods

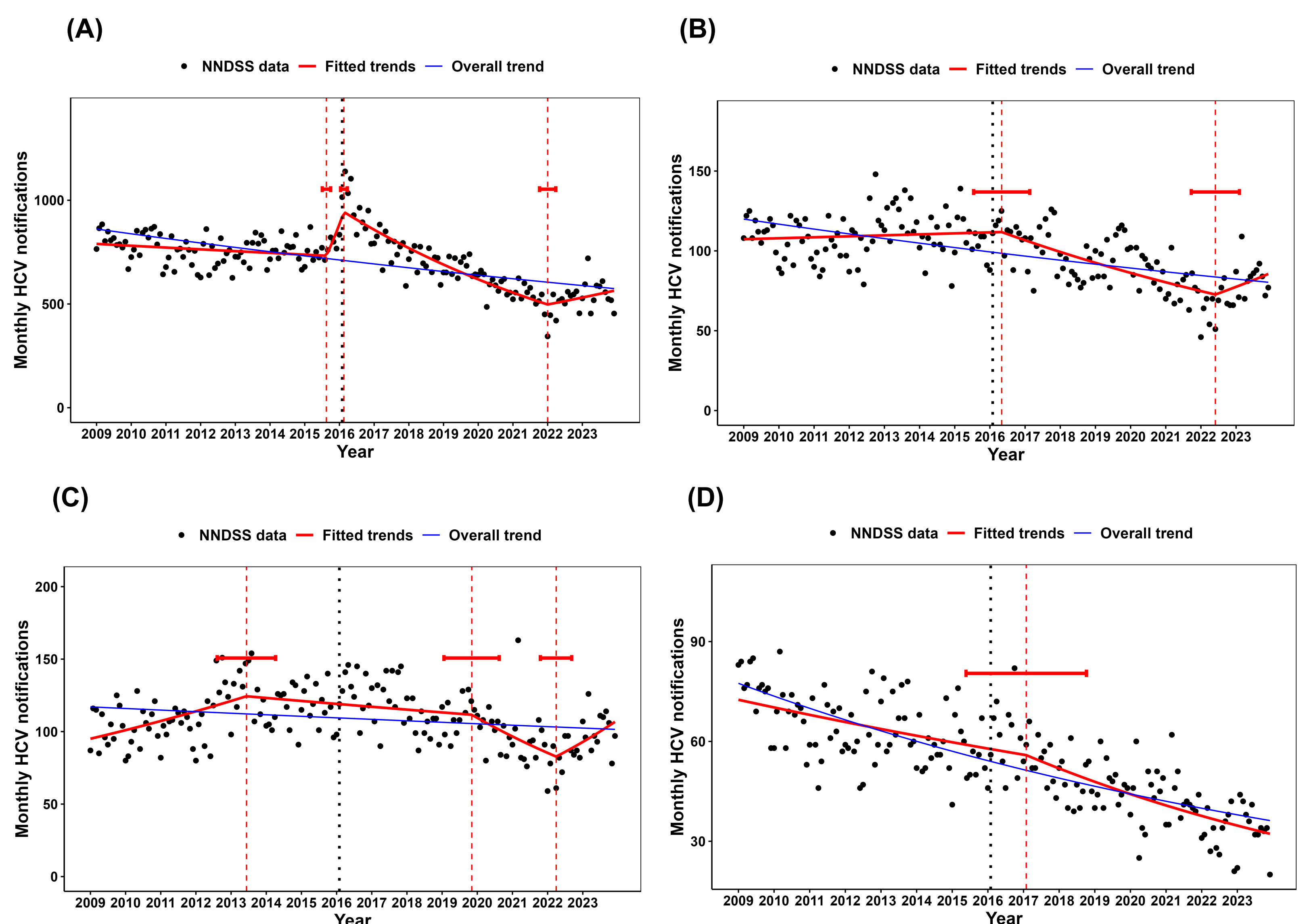
- Analyzed monthly HCV notification data from January 2009 to December 2023.
- Examined trends in total and younger age (15-24 years) notifications, including by gender.
- Younger age (15-24 years old) HCV notifications were used, given likelihood they reflect more recent HCV transmission.
- Identified change points in trends using Poisson Segmented regression and assessed goodness-of-fit using standard statistical methods.
- Determined the best number of turning points with the lowest Bayesian Information Criteria (BIC) and reported trends with a rate ratio (RR).
- Evaluated the sensitivity of detected change points to outliers and the period of analysis.

Conclusions

- The rapid increase in HCV notifications in early to mid-2016 is likely due to increased testing associated with unrestricted DAA therapy access in March 2016.
- An increase in HCV notifications among the younger male population was observed after May 2022, contributing to an increase in overall HCV notifications.
- This could reflect either an increase in HCV incidence among males or increased HCV screening, possibly due to enhanced testing programs in prison-based settings.
- Further investigation is required to comprehend the mechanisms behind these diverging notification trends among young males and inform potential strategies for reducing increases in incidence.

Results

Figure 1: Monthly HCV notifications (primary diagnoses) during 2009-2023
A) Total national notifications; B) National notifications in 15-24-year-olds; C) HCV notification trends among younger males (15-24 years); D) HCV notification trends among younger females (15-24 years)



Note: black points: HCV notification data from NNDSS; red line: segmented regression trend; vertical black-dotted line: subsidised DAA became available (1st March 2016); vertical red-dotted line: year of change points

Table 1: Month change in trends occur and the rate ratio (RR) of HCV notifications before and after each change point

	RR	Change year 1	RR	Change year 2	RR	Change year 3	RR
National	0.99	September 2015	1.65	March 2016	0.90	February 2022	1.07
National (15-24 yrs)	1.01	June 2016	0.93	July 2022	1.11	-	-
Male (15-24 yrs)	1.06	July 2013	0.98	December 2019	0.88	May 2022	1.16
Female (15-24 yrs)	0.97	February 2017	0.93	-	-	-	-