

# Adolescent abortion in 11 high-income countries including Australia: towards the establishment of a minimum data set

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**E**quitable access to quality abortion services should be provided to all women, including adolescents.

Research shows that adolescents experience greater barriers than adults when attempting to access health services for non-stigmatised issues<sup>1</sup>. Negative views concerning adolescent sexual activity in general affects the way in which services are delivered to and accessed by adolescents.<sup>2</sup> Abortion-related stigma, which affects women and providers,<sup>3</sup> is therefore likely to be amplified in the adolescent population. Little attention has been paid to the examination of data on adolescent abortion, affecting the ability of health services to adequately respond to adolescent needs<sup>4</sup> and provide a benchmark to assess service quality.<sup>5,6</sup> Knowledge about cost, timing, method and access to abortion care for adolescents is required to support the development and improvement of reproductive services for this vulnerable group.

Limited national surveillance of abortion in Australia remains a major public health challenge, which adversely impacts upon the ability of national, state and territory governments to monitor health outcomes of priority populations and plan and evaluate reproductive health policy and services.<sup>7</sup> Only three jurisdictions (Northern Territory, South Australia and Western Australia) have reporting requirements for induced surgical and medical abortion. Medicare data has been used nationally as a proxy for abortion;<sup>8,9</sup> however, this data lacks specificity and sensitivities for early pregnancy, surgical abortions and for medical abortion.<sup>10</sup>

## Abstract

**Objective:** A major public health challenge in Australia is the lack of national adolescent abortion data. This descriptive study identifies, collates and describes publicly available adolescent abortion data in high-income countries including Australia, to describe trends over 10 years and provide recommendations for strengthening data collection.

**Methods:** Data were extracted from publicly available government sources that met inclusion criteria. All relevant adolescent abortion data from 2007 to 2017 were extracted from datasets and analysed.

**Results:** Eleven high-income countries were included. Incidence data for the adolescent population were available for all countries and states. Incidence of adolescent abortion over 10 years shows a downward trend in all countries. Gestational age at time of abortion was the second-most available variable. The level and type of data across all countries varied; there was a lack of age range standardisation and aggregation of gestational weeks differed, making comparisons difficult.

**Conclusion:** A minimum data set of standardised abortion information will enable appropriate adolescent abortion policies and services to be developed that are informed by high quality, up-to-date intelligence.

**Implications for public health:** Availability of data affects government's ability to adequately monitor national adolescent health outcomes and plan and evaluate appropriate reproductive health policy and services.

**Key words:** Induced abortion, adolescent, public health, surveillance

Chan et al. calculated the most recent national incidence estimates on abortion in Australia as 19.7 abortions per 1,000 women aged 15–44 years for 2003, using South Australian data and Medicare statistics.<sup>8</sup> We were only able to identify one Australian cohort study that calculated an abortion incidence rate of 2.1 per 100 women years for 16–25-year-olds<sup>4</sup>.

The World Health Organization 2012 abortion guidelines state that quality abortion care must include the accurate collection of abortion service information and the routine

monitoring and evaluation of the service in order to be able to maintain and improve the service if required.<sup>11</sup> This includes incidence, by age, method and gestational age at time of procedure.<sup>11</sup> Method of abortion is important as it indicates the equipment and funding required for appropriate abortion service planning. Collecting method-related data can also be used to understand if changes in the preference of different population groups occurs over time. For example, in Sweden and Finland over a 20-year period, the demand for medical abortion has overtaken the demand

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for surgical abortion.<sup>12</sup> Gestational age at the time of abortion might imply that barriers, such as lack of services or knowledge, is delaying adolescent access to services.

The aim of this research is to strengthen adolescent abortion data collection and reporting in Australia. Our objectives are: 1) to identify available adolescent abortion data in comparable high-income countries including Australia; 2) compare the types of information in these data sets; and 3) describe trends over a 10-year period.

## Methods

### Design

This is a descriptive, retrospective study using publicly available surveillance data on adolescent abortion. We used the World Health Organization definition of adolescents as being aged 10–19 years<sup>13</sup> and sought annual data from Australia and 10 high-income countries for the years 2007 to 2017.

### Sample

Australian data were only publicly available for the states of South Australia and Western Australia. Comparison countries were selected on the basis of the following:

- 1) high-income country as defined by the World Bank<sup>14</sup>;
  - 2) Gross National Income (GNI) per capita similar to Australia (calculated using the Atlas method by World Bank<sup>15</sup>);
  - 3) comparable healthcare systems according to the Commonwealth Fund report<sup>16</sup>; and
  - 4) published national abortion statistics with disaggregated data for adolescents.
- This process identified 10 countries for comparison: Canada, Denmark, Finland, Germany, Netherlands, New Zealand, Norway, Sweden, United Kingdom (UK) and the United States (US).

### Data extraction

We selected 13 abortion variables for extraction based on a review and synthesis of the literature and national and international reports on abortion.<sup>11,17–19</sup> These included: incidence, rate, indication for abortion, method of abortion, gestational age at time of abortion, type of service (public vs. private or hospital vs. clinic), contraception, previous abortion, previous mode of birth, sexual transmitted infection (STI) screening, information about funding for procedure, complications, and adolescent female population.

National abortion data for the 10 comparison countries were retrieved from databases on government websites for five countries (Denmark, Finland, Germany, Sweden and the UK) and from reports for three countries (Netherlands, Norway and the US) and both Australian states (South Australia and Western Australia). In addition, data was retrieved for Canada and New Zealand from a combination of website databases and reports. National-level abortion data were collected differently in each country. For example, in New Zealand, a Notification of Abortion form is submitted for each procedure,<sup>20</sup> while in the US the Centers for Disease Control and Prevention (CDC) requests data from the 52 central health agencies in the country.<sup>21</sup> In the UK, authorised medical practitioners are required to submit an Abortion Notification form (HSA4) to the Ministry of Health for each procedure;<sup>19</sup> similarly, in Finland a specific form is submitted for each procedure to the National Institute for Health and Welfare.<sup>22</sup> The data were available in a range of formats, including: 'data cubes' where the type of information could be manipulated into a tabular format and easily extracted; spreadsheets, with various iterations of how the different types of data is presented; and through yearly reports that included the information in tables and within the texts. Different types of abortion information, e.g. incidence, gestational age or method, for a country were at times identified in different formats, e.g. data cube and report.

### Data analysis

For countries where the adolescent-specific abortion rate was not reported, rates were calculated using incidence data for abortions in women under the age of 20 years and population data for women under the age of 20 years. Rates were only calculated if the incidence age range and population age range were the same. This allowed for a maximum 10-year trend analysis for each country, where data were available.

## Results

Abortion data from 2007 to 2017 were extracted for all 11 countries, except for the US where only nine years of data (2007–2015) were available. All countries and two Australian states had abortion incidence data disaggregated for the adolescent population. Gestational age at time of abortion was the second-most available disaggregated abortion variable.

### Data availability

Table 1 describes data sources and detail for each country. Some variables were available for the whole population, but not disaggregated by age. The UK had the most data available, with nine of the 13 variables disaggregated by age. Canada and Germany reported on a higher number of abortion variables across the whole population, while only having one or two disaggregated by age.

In Finland and the UK, each of the grounds were stated and disaggregated by age, e.g. foetal defect, prevent injury to a woman's physical or mental health, etc. Some countries, such as Finland, provided greater details regarding the method of abortion, e.g. suction curettage, induced by drugs etc, while the other countries (Sweden, the UK and the US) noted only surgical or medical method (data not shown). No data concerning abortion complications was disaggregated by age. Four countries/states (South Australia, Netherlands, New Zealand, and the US) provided complications data for the whole population (data not shown).

### Adolescent abortion incidence rate and trend

Figure 1 shows the incidence rate of abortion incidence per 1,000 women aged 15 to 19 years, across a 10-year period, for seven countries and two Australian states. For some countries, age group data was limited to 'under 20' or '19 years and younger' with the lower age of the age range not stated. There was a downward trend in the abortion incidence rate among adolescents aged <20 years for all countries. The steepest decline in the incidence rate was in New Zealand, where it declined from 26.7 per 1,000 women aged 15–19 years in 2007 to 9.2 per 1,000 women aged 15 to 19 years of age in 2017. In contrast, Germany and the Netherlands showed less marked declines.

### Gestational age data

Figure 2 shows the most recent gestational age at time of abortion data for adolescents <20 years for six countries. Data is stratified by first and second trimester; however, as each country aggregates the information differently, the gestational age for each country cannot be directly compared. First trimester ranges from ≤11 weeks, ≤12 weeks and ≤13 weeks. Most abortions among adolescents occur during the first trimester. In Norway, 96% of abortions occurred at 12 weeks or earlier in 2017. This was the highest

Table 1: Country's abortion statistics disaggregated and made available for adolescent population.

Country	Source abortion data	Year	Incidence	Incidence rate	Indications for abortion <sup>a</sup>	Method of abortion <sup>b</sup>	Gestational age <sup>c</sup>	Public/private or hospital/clinic <sup>d</sup>	Contraception <sup>e</sup>	Previous abortion <sup>f</sup>	Previous delivery <sup>g</sup>	STI screening <sup>h</sup>	Information on funding for procedure <sup>i</sup>	Complications <sup>j</sup>
Australia														
- South Australia	SA Health <sup>36</sup>	2007–2015	Yes	Yes	—	—	—	—	—	Yes	—	—	—	—
- Western Australia	Department of Health Western Australia <sup>37</sup>	2007 - 2015	Yes	Yes	—	—	—	—	—	—	—	—	—	—
Canada	Canadian Institute for Health Information <sup>38</sup>	2007 - 2016	Yes	—	—	—	—	Yes	—	—	—	—	—	—
Denmark	Statistics Denmark <sup>39</sup>	2007 - 2015	Yes	—	—	—	—	—	—	—	—	—	—	—
Finland	National Institute for Health and Welfare <sup>40</sup>	2007 - 2017	Yes	—	Yes	Yes	Yes	—	Yes	Yes	Yes	—	—	—
Germany	Federal Health Monitoring System [Gesundheitsberichterstattung des Bundes] <sup>41</sup>	2007 - 2017	Yes	—	—	—	—	—	—	—	—	—	—	—
Netherlands	Health and Youth Care Inspectorate [Inspectie Gezondheidszorg en Jeugd] <sup>42</sup>	2007 - 2016	Yes	—	—	—	—	—	—	—	—	—	—	—
New Zealand	Statistics New Zealand Tatauranga Aotearoa <sup>20</sup>	2007 - 2017	Yes	Yes	—	—	Yes	—	Yes	Yes	Yes	—	—	—
Norway	Norwegian Institute of Public Health [Folkehelseinstituttet] <sup>43</sup>	2008 - 2017	Yes	Yes	—	—	Yes	—	—	—	—	—	—	—
Sweden	The National Board of Health and Welfare [Socialstyrelsen] <sup>44</sup>	2014 - 2017, 2007 - 2010	Yes	Yes	—	Yes	Yes	—	—	Yes	—	—	—	—
United Kingdom	Department of Health and Social Care <sup>45</sup>	2007 - 2017	Yes	Yes	Yes	Yes	Yes	—	—	Yes	Yes	Chlamydia	Yes	—
United States	Centers for Disease Control and Prevention <sup>35</sup>	2007 - 2015	Yes	Yes	—	—	Yes	—	—	—	—	—	—	—

## Notes:

a: Indications for abortion are the legal grounds which woman are having their abortion.

b: Method of abortion is whether it was carried out by medical or surgical abortion method.

c: Gestational age is the weeks of gestation that the women was at when she had the abortion.

d: Type of service is whether the abortion was carried out at a private or public service or whether it was carried out at a hospital or clinic.

e: Contraception data was what women were using before the abortion and their choice of method after the procedure.

f: Previous abortion is the number of previous pregnancies resulting in an abortion.

g: Previous deliveries are the number of previous pregnancies that resulted in a delivery.

h: STI screening is whether the woman was screened for an STI when they came for their abortion.

i: Information about funding for the procedure is around whether it was publicly funded, privately funded or the woman had to pay herself.

j: Complications which are abortion related morbidity.

proportion among all countries where data were available. In the US, approximately 25% of abortions among those aged <15 years occur >13 weeks. Among adolescents in New Zealand, the UK and the US, approximately 13% of abortions occurred >12 weeks and 13 weeks, respectively, which is higher when compared to other countries.

## Discussion

This study reports for the first time adolescent disaggregated abortion data and trends in 10 high-income countries and two Australian states to provide insights for strengthening national data collection and reporting in Australia. There was a lack of consistency and considerable variation in the abortion data available on adolescents across countries. Despite these shortcomings, we noted a downward trend in abortion incidence rate over 10 years from 2007 to 2017 and substantial variability in gestational age at abortion across countries.

Although adolescents are a highly vulnerable population, information is usually not reported separately. Further, this lack of information is compounded by the absence of standardisation in basic reporting of age and gestation of abortion data for adolescents, negatively affecting the utility of the data.

The decline in abortion incidence over 10 years concurs with Sedgh et al.'s similar downward trend among women 15–44 years in Europe and Northern America.<sup>23</sup> This might be attributed to improved contraception use,<sup>12</sup> as well as increased health literacy, education, later age of first sexual encounter and greater access to services. Data from New Zealand showed the largest decrease in abortion incidence over the 10-year period, which has been postulated as being linked to the increased uptake of subsidised LARC<sup>24–26</sup> and rise in the percentage of adolescents who are delaying the initiation of sexual behaviour.<sup>27</sup> More research is required to understand the factors for this trend in

the adolescent population in high-income countries.

More than 90% of abortions in Finland, Norway and Sweden occurred during the first trimester. In Norway and Sweden, early access to abortion is likely to be facilitated by legislation that permits induced abortion on request.<sup>28</sup> However, in Finland, a woman must justify why she cannot continue with her pregnancy to one doctor who is required to consent if the woman is under 17 years of age.<sup>29,30</sup> Despite the legal differences in these countries, induced abortion is viewed as a standard component of public healthcare,<sup>31</sup> which may help to ensure access to quality information about abortion and services for adolescents.

The UK and Finland stand out as collecting the most comprehensive abortion data. The UK collected the most abortion information – nine variables – that was disaggregated by age. The information is comprehensive as it covers various aspects around incidence, legal indications, method, gestational

age, previous pregnancies and abortion, whether STI screening for chlamydia was carried out and the source of funding that covered the costs of the procedure. Finland made available seven variables of abortion information. Finland stands out, as information was made accessible through the use of an easily manipulated 'data cube' where abortion information could be disaggregated by age range, years, or other

abortion information. For example, data could show the legal indications for abortion by gestational weeks at time of abortion for 2017 among 19-year-olds or younger. The amount of abortion information made available and how the information was made accessible by the UK and Finland are useful templates that could be used in Australia to direct national data collection and standardisation.

In this paper, 13 variables, including the three outlined by the WHO as important abortion information,<sup>11</sup> were used to extract information. The study found a patchwork of available data and disaggregated adolescent data in Australia and across high-income countries. There is a need for Australia and other countries to improve the regular collection of national comprehensive abortion data. Box 1 outlines our proposed variables required for a minimum abortion data set for adolescents. Like other reproductive health areas, this information can be used by the Commonwealth to appropriately fund, monitor and evaluate the service delivery and quality of care of adolescent abortion services.

Finally, this paper identified the need for standardisation of data collection and presentation. Adolescent age ranges varied between countries and did not follow the World Health Organization's definition of adolescents to be including 10–19-year-olds.<sup>13</sup> The lower age limit was variably reported limiting interpretation. Similarly, gestational age was grouped differently between countries. Comprehensive national public health surveillance of abortion services will generate quality information that would be able to support the development and monitoring<sup>7</sup> of abortion services for adolescents and benchmark the progress and care of abortion services for adolescents across different subgroups within a country, and in other countries. This is important, as it shows where there are areas in need of improvement and aspects where adolescents

Figure 1: Rate of abortion incidence across a 10-year period (<20 years of age).

Rate per 1,000 women <20 years of age

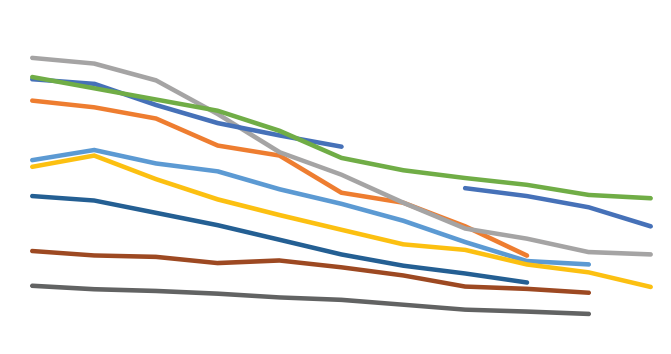
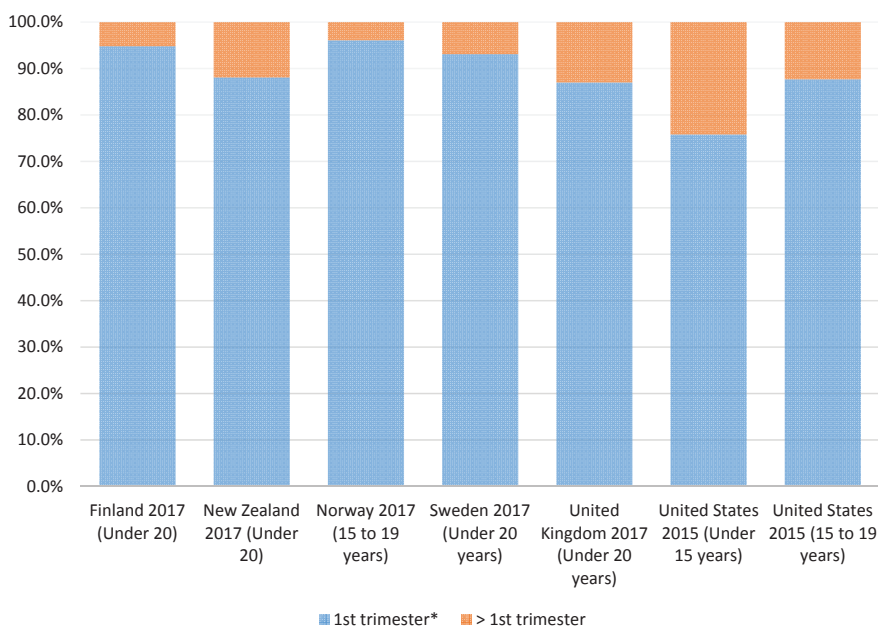


Figure 2: Gestational age at time of abortion for most recent data.



Note:  
\*The first trimester weeks is different for each country: Finland ≤13 weeks, New Zealand ≤12 weeks, Norway ≤12 weeks, Sweden ≤11 weeks, United Kingdom ≤12 weeks, United States ≤13 weeks

**Box: 1 Minimum data set – abortion data for adolescents.**

**Essential abortion data for adolescents**

- Incidence (including rate)
- Method
- Gestational age at time of procedure
- Legal grounds
- Service locations
  - Urban/Regional/Rural
  - Hospital/Clinic/GP
  - Public/Private
- Previous pregnancy
- Previous abortion
- STI screening

**Optional abortion data for adolescents**

- Information about funding for procedure
  - Public/private health insurance/out-of-pocket
- Complications
- Hospital admissions owing to abortion
- Contraceptive used before abortion
- Contraceptive prescribed/chosen as part of the abortion care

health is tracking well – or not.<sup>32</sup> Both CDC (2012) and Roberts et al. (2017) discuss the importance that standardisation of information has when it comes to comparing data nationally and internationally.<sup>33,34</sup> In the US, the CDC collects standardised abortion data by providing a template to abortion providers on the aggregation, compilation and categorisation of abortion information to be collected and provided to them,<sup>35</sup> ensuring consistent, comparable national abortion information is received across all states.<sup>21</sup>

## Conclusion

Australia lags behind other high-income countries in its surveillance of abortion service provision and outcomes for women of reproductive age and adolescents. Policy, planning and delivery of services are therefore not based on evidence. For complex health issues, such as adolescent abortion, the development of nationally and internationally consistent data and indicators is warranted. To develop appropriate policies and services and promote transparency, national level standardised disaggregated information needs to be collected and made publicly available. As proposed in this paper, a minimum data set of abortion information for adolescents needs to be nationally collected across all abortion services, both publicly and privately, in Australia. This helps to prevent the adolescent population from being continually overlooked and supports the recognition that adolescents require appropriate quality abortion care and support. There needs to be equivalency in standards of data collection, availability and how information is disaggregated and made available when it comes to abortion, as compared to other reproductive health areas. In this paper, national-level collection and standardisation of abortion data is seen to not only be needed in Australia, but across other high-income countries as well.

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