

## Key Points

- 1,302 cases of gonorrhoea were reported in Ireland, giving a notification rate of 28.4 per 100,000 population; national rate has remained steady over the past three years
- The proportion of cases among males remains high in 2015 (83%)
- Gonorrhoea is mainly affecting young people (aged 20-24 years)
- Where mode of transmission is known, 55% of cases are among men who have sex with men (MSM) and 45% among heterosexuals
- 290 (22%) cases diagnosed with gonorrhoea were also diagnosed with another STI in 2015, including 2% who were newly diagnosed with HIV
- While genital infections were the most frequently reported site of infection among males (36%) and females (62%), pharyngeal infection was reported among 26% of males and 10% of females

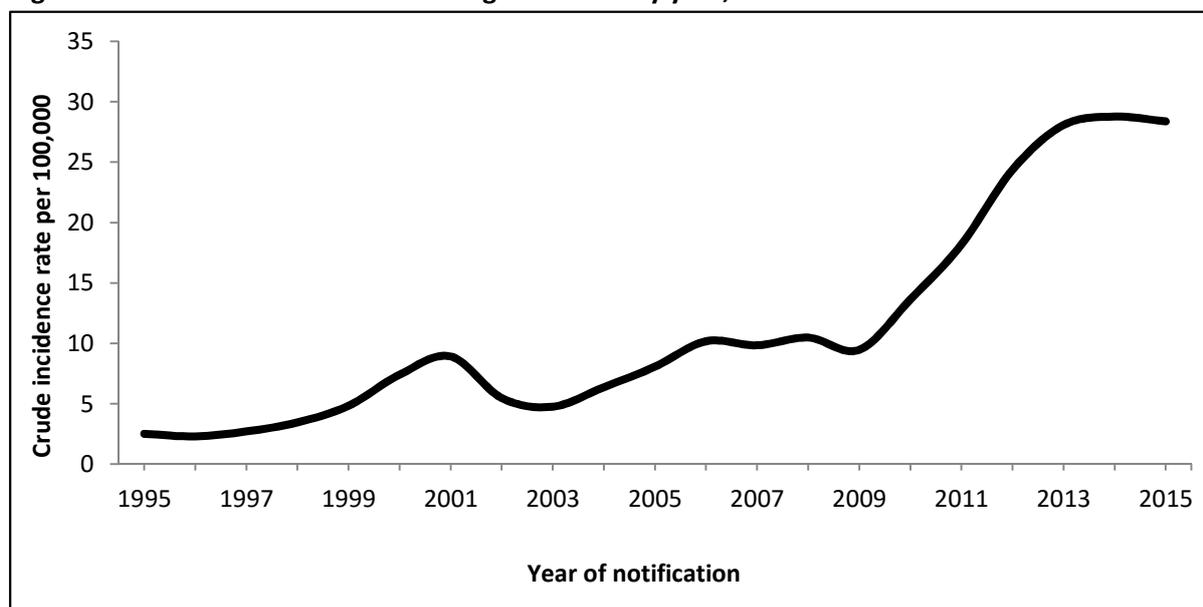
## Background

Since 1948, gonorrhoea has been a notifiable sexually transmitted infection (STI) in Ireland<sup>1</sup>. From early 2013, case based information on laboratory and clinical notifications have been collated in the computerised infectious disease reporting system (CIDR). Prior to this, information on gonorrhoea was collected nationally on an aggregate basis, from STI clinics and from general practitioners (GPs) via departments of public health.

## National data for 2015

In 2015, a total of 1,302 cases of gonorrhoea were reported in Ireland, giving a notification rate of 28.4 per 100,000 population. There has been a threefold increase in the rate of gonorrhoea notifications since 2009. However, the rate has remained steady over the past three years. Figure 1 shows the trend in gonorrhoea notifications from 1995 to 2015.

**Figure 1: National notification rates of gonorrhoea by year, 1995 to 2015**



A summary of the key data is presented in Table 1.

**Table 1: Summary of gonorrhoea cases in Ireland, 2015 (n=1,302)**

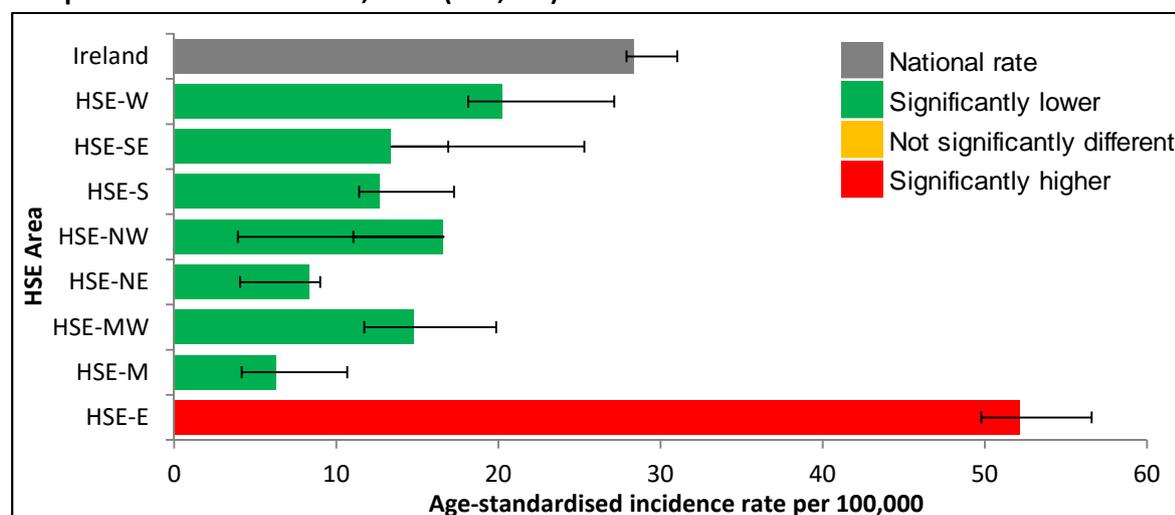
<b>Number of cases</b>		<b>1,302</b>
<b>Notification rate</b>		28.4/100,000
<b>Gender</b>	Males	1,081 (83%)
	Females	220 (17%)
	Male-to-female ratio	4.9
<b>Age</b>	Median age cases	27 years
	Age range*	14 - 75 years
<b>Age-gender specific rate</b>	Highest overall	122/100,000 (20-24 years)
	Highest among males	189/100,000 (20-24 years)
	Highest among females	56/100,000 (20-24 years)
<b>Mode of transmission</b>	Men who have sex with men	401
	<i>% where known</i>	55%
	Heterosexual	324
	<i>% where known</i>	45%
<b>Multiple STI infections</b>	All STIs	290 (22%)
	Most common: chlamydia	181 (14%)

\*Excludes those <14 years

### HSE area of residence

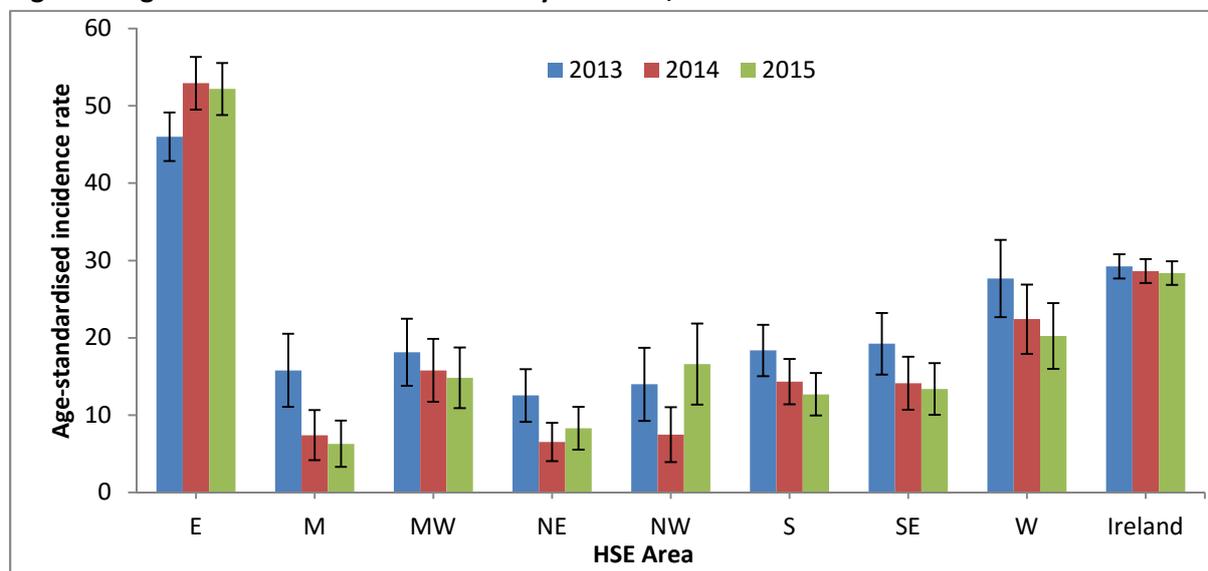
The highest age-standardised incidence rate (ASIR) was in HSE East (52.2/100,000), which is significantly higher than the national ASIR. HSE West had the second highest ASIR (20.2/100,000), and is below the national ASIR, along with the remaining HSE areas (Figure 2).

**Figure 2: Age-standardised incidence rate and 95% confidence intervals of gonorrhoea by HSE area compared with national rate, 2015 (n=1,302)**



In HSE Northwest, the ASIR increased by 221% in 2015 (to 16.6/100,000 from 7.5/100,000 in 2014) (Figure 3).

**Figure 3: Age-standardised incidence rate by HSE area, 2013-2015**

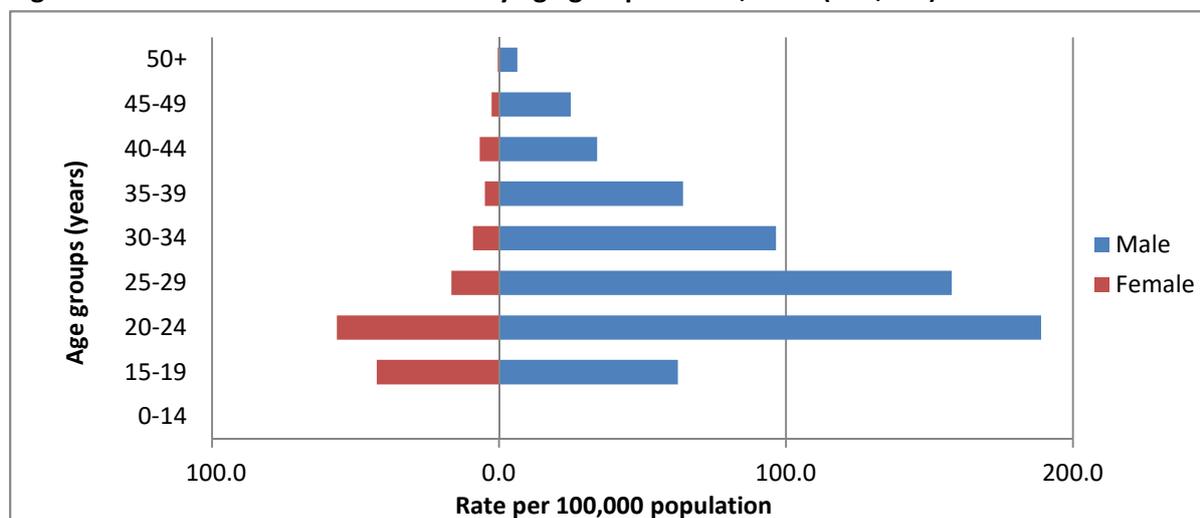


Dublin remains the most frequently reported county of residence, with more than two-thirds of all cases, giving a notification rate of 69.5/100,000. This is more than double the rate in Galway, which is the county with the second highest notification rate (26.7/100,000).

### Age and Gender

In 2015, almost one third (28%, n=364) of gonorrhoea cases notified in 2015 were among those aged between 20 and 24 years old and 70% (n=916) were aged between 20 and 35 years old. The highest rate among males was in the 20-24 year old age group followed by the 25-29 year old group. The highest rate among females was also in the 20-24 year age group followed by the 15-19 year old age group (Figure 4).

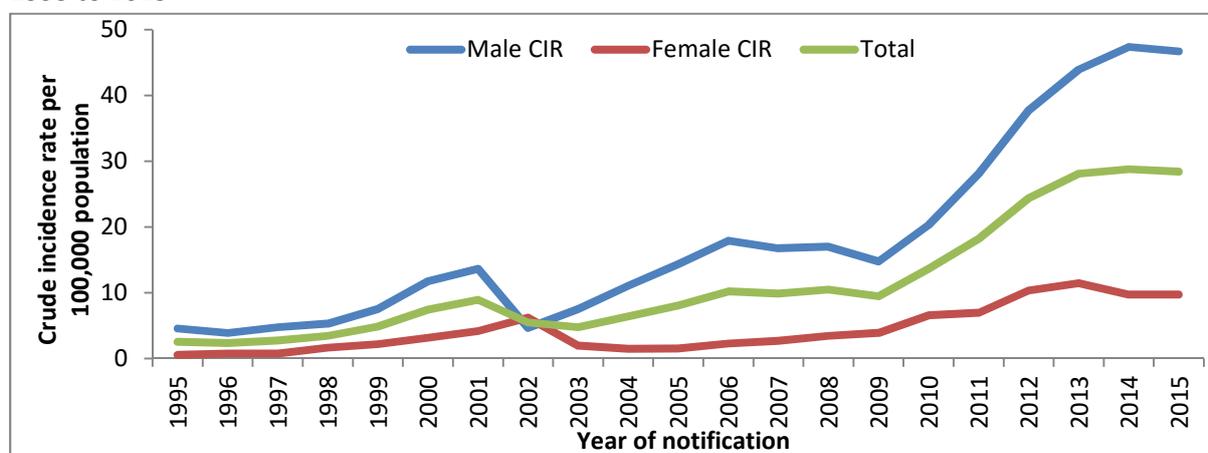
**Figure 4: Gonorrhoea notification rate by age group and sex, 2015 (n=1,302)**



The median age of cases (excluding those <14 years) was 27 years (age range 14 to 75). The median age of male cases was 29 years (age range 14 to 75 years) and among female cases was 23 years (age range 16 to 61 years). There was one case of gonorrhoea notified in the 0-14 year age group.

The majority of cases were among males (n=1,097, 83%). The rate in females remained the same as in 2014 at 9.7/100,000 and in males the rate decreased slightly from 47.2/100,000 in 2014 to 46.7 in 2015 (Figure 5). The male-to-female ratio decreased slightly from 5.0 in 2014, to 4.9 in 2015. Across all HSE areas, the male-to-female ratio ranged from 2.0 in HSE Southeast to 6.3 in HSE East.

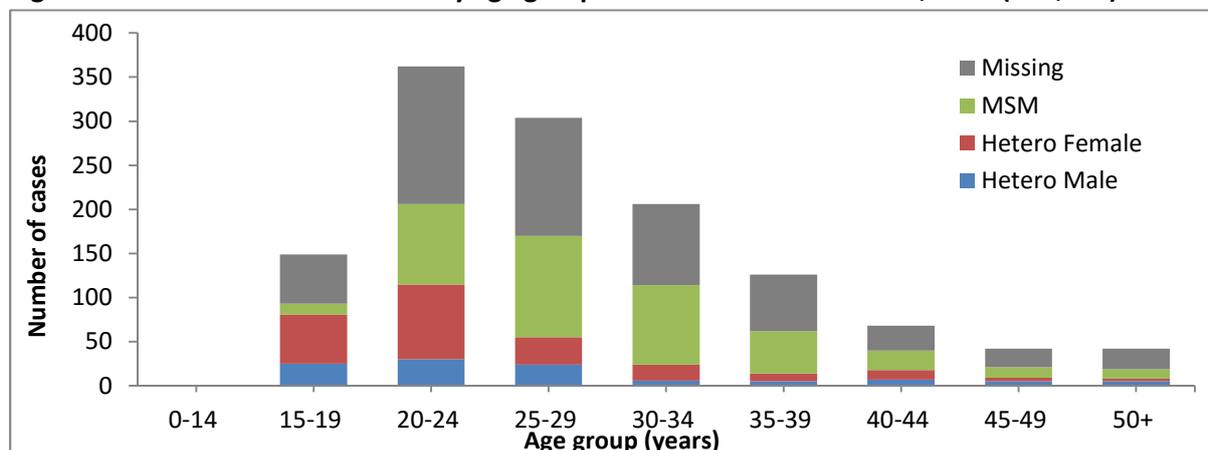
**Figure 5: Notification rates of gonorrhoea by year of notification, sex and overall national total, 1995 to 2015**



### Mode of transmission

Mode of transmission was available for 56% (n=727) of gonorrhoea notifications in 2015. Fifty-five percent (n=401) were reported as men who have sex with men (MSM), a decrease from 60% (n=377) in 2014. Mode of transmission was reported as heterosexual for 45% of notifications (n=324; 217 females and 107 males), an increase from 40% (n=249; 170 females and 79 males) in 2014, particularly among females. MSM tended to be older than heterosexuals, with a median age of 29 years, compared to 23 years among heterosexuals (males 24 years and females 22 years) (Figure 6).

**Figure 6: Gonorrhoea notifications by age group and mode of transmission, 2015 (n=1,302)**



These data should be interpreted with caution given the high level of missing data. Among 571 male cases, mode of transmission was unknown. Additionally, the completeness of data on MSM transmission is a reporting artefact, as this mode can be assigned for some cases for surveillance purposes, based on attendance at MSM specific clinics.

## **Region of birth**

Region of birth was available for 27% (n=355) of gonorrhoea notifications in 2015 (Table 2). This field was slightly more complete than in 2014 (21%).

**Table 2: Region of birth of gonorrhoea notifications, 2015 (n=355)**

Region of birth	N (%)
Ireland	264 (74)
Latin America	36 (10)
Central & Eastern Europe or other regions	31 (9)
Western Europe	24 (7)

## **Site of infection**

Specimen type was used as a proxy for site of infection and was available for 93% (n=1,214) of cases. However, CIDR reports the first site of infection, and so this doesn't represent all the cases or sites. The most frequently reported specimen types were swabs (66%, n=812) and urine (26%, n=318). The most frequently reported swab specimen type sites were the throat/pharynx (24%, n=309), rectum (20%, n=252) and the vagina/endocervix (9%, n=119).

Genital gonorrhoea was the most frequently reported site of infection (41%, n=528), of which 74% (n=391) occurred in males and 26% (n=137) occurred in females. Almost a quarter of infections were pharyngeal (n=309), of which 93% (n=285) occurred among males compared with 7% (n=23) among females. The third most common site of infection was anorectal (19%, n=251), of which 99% (n=248) were males compared to 1% (n=3) among females. Eye infections were reported for two cases (one male and one female).

## **Multiple STIs infections**

Seventeen cases were diagnosed with two or more episodes of gonorrhoea in 2015, of which 16 were males. Four-percent (n=48) of cases also had a gonorrhoea diagnosis in 2014.

In addition to a diagnosis of gonorrhoea in 2015, 18% (n=240) of males and 4% (n=50) of females were diagnosed with another STI. Chlamydia (n= 181, 14%) was the most frequently reported STI. The large volume of notifications in HSE East and the use of more automated processes for processing notifications in CIDR, which do not allow for de-duplication of cases, may have contributed to an underestimate of *Chlamydia trachomatis* infections among cases with gonorrhoea in HSE East.

Other STIs diagnosed in gonorrhoea cases in 2015 included syphilis (n=42, 3%), HIV (n=32, 2%), LGV (n=11) and genital herpes simplex (n=8). Four cases were diagnosed with hepatitis C and three cases with hepatitis B.

### **Patient type**

Patient type (reflecting the service at which the patient was diagnosed) was available for 94% of gonorrhoea cases in 2015. STI clinics diagnosed 59% (n=766) of cases, of which 87% (n=665) were males. General practices diagnosed 34% of cases, of which 74% were males (Table 3).

**Table 3: Gonorrhoea notifications by gender and patient type, 2015 (n=1,302)**

Patient type	Male N (%)	Female N (%)	Unknown N (%)	Total N (%)
<b>Emergency department</b>	2 (0.2)	3 (1.6)	0 (0.0)	5 (0.4)
<b>General practice</b>	350 (33)	97 (44)	1 (100)	448 (34)
<b>Hospital (day patient)</b>	0 (0.0)	1 (0.5)	0 (0)	1 (0.1)
<b>Hospital (inpatient)</b>	1 (0.1)	0 (0.0)	0 (0)	1 (0.1)
<b>STI clinic (outpatient)</b>	665 (61)	101 (45)	0 (0)	766 (59)
<b>Not Specified</b>	2 (0.2)	0 (0)	0 (0)	2 (0.1)
<b>Other</b>	25 (2)	7 (3)	0 (0)	32 (2)
<b>Unknown</b>	36 (3)	11 (5)	0 (0)	47 (4)
<b>Total</b>	<b>1,081</b>	<b>220</b>	<b>1</b>	<b>1302</b>

### **Discussion**

The national data for 2015 shows that gonorrhoea is affecting mainly young people and MSM. There was little change in the overall gonorrhoea notification rate in 2015 (28.4/100,000 versus 28.6/100,000 in 2014).

The proportion of cases among males remained the same as in 2014, at 83%. Although completeness for mode of transmission among males was low (47%), MSM still accounted for over half of cases where mode of transmission was known. In addition, a 5% increase in mode of transmission among heterosexuals was observed in 2015.

In addition to a diagnosis of gonorrhoea in 2015, 18% (n=240) of males and 4% (n=50) of females were diagnosed with another STI. Of the 17 cases diagnosed with more than one episode of gonorrhoea in 2015, 16 were males. These data suggest ongoing high-levels of gonorrhoea transmission among MSM. Sexual risk behaviour, including unprotected sexual intercourse, persists particularly among MSM, putting them at increased risk of STI infections and HIV.

In 2015, 70% of gonorrhoea cases in England occurred among MSM, which represents a 21% increase compared with 2014 figures<sup>2</sup>. In the Netherlands, 68% of cases diagnosed with gonorrhoea at STI clinics occurred among MSM<sup>3</sup>.

Continued improvements in the completeness of mode of transmission are essential to more accurately describe the burden of gonorrhoea and target interventions. Close surveillance of gonorrhoea trends is especially important, as the number of gonorrhoea infections with resistance against first-line antibiotics is a growing threat. Availability of mode of transmission information could stimulate the systematic culturing of gonorrhoea diagnosed among high-risk groups, to prevent the transmission of multi-drug resistant strains. New guidelines for the treatment of gonorrhoea were issued by the World Health Organization in response to changes in antimicrobial resistance patterns<sup>4</sup>.

Targeted prevention measures for MSM introduced in response to the outbreak in 2013 should continue. In addition, combinations of key interventions, such as access to condoms, comprehensive HIV and STI testing and treatment, and health promotion, should be utilised to the highest levels, to improve the sexual health of MSM and reduce HIV and STI infections<sup>5</sup>. Finally, more insight into the underlying causes of risk behaviour among high-risk groups may benefit future prevention and control measures.

### **Acknowledgments**

The Health Protection Surveillance Centre (HPSC) would like to thank all those who provided data for this report, particularly the STI clinics, and the infectious disease surveillance staff within the departments of public health, the laboratories and GP clinics.

### **References**

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## **Technical Notes**

1. Data are analysed by date of notification in CIDR
2. Data for this report were extracted from the STI aggregate database (1995-2012) and CIDR (2015) on 16 September 2016, and were correct at the time of publication.
3. Please note that information from previous years is updated on an ongoing basis in CIDR, and so information from previous years represents our current understanding and most up to date data as of 16th September, 2016, and may not correspond exactly with what was reported in previous annual reports. Similarly, data for 2015 may be updated further in due course and will be reported on in subsequent annual reports.
4. Percentages are rounded up in the text and provided to one decimal place in the tables.
5. The counties covered by each HSE area are as follows: HSE East: Dublin, Kildare & Wicklow; HSE Midlands: Laois, Longford, Offaly & Westmeath; HSE Midwest: Clare, Limerick & N. Tipperary; HSE Northeast: Cavan, Louth, Meath & Monaghan; HSE Northwest: Donegal, Leitrim & Sligo; HSE South: Kerry & Cork; HSE Southeast: Carlow, Kilkenny, S. Tipperary, Waterford & Wexford; HSE West: Galway, Mayo & Roscommon.
6. Age-standardised incidence rates were calculated using the direct method in which the national population was taken as the standard population. Population data were taken from Census 2011 from the Central Statistics Office. Data were aggregated into the following age groups for the analysis: 0-4 years, 5-9 years, 10-14 years, 15-19 years, 20-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years and  $\geq 65$  years.

## **Suggested citation**

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This report was prepared by Laura Nic Lochlainn and Derval Igoe, September 2016