

# 2013 Youth Firesetting Prevention & Intervention

## *Fire in Minnesota* Supplemental Report



## **Minnesota Department of Public Safety State Fire Marshal Division**

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## Report Purpose

Since 1989, the Minnesota Department of Public Safety State Fire Marshal Division has compiled and published an annual report based on data reported by Minnesota fire departments. The report includes a detailed exploration of fire causes, casualties, service calls, property loss and trends. These data are collected from 99 percent (as of 2013) of individual fire departments in the state through the Minnesota Fire Incident Reporting System (MFIRS).

According to the 2013 *Fire in Minnesota* report, from 2008 through 2012, just 0.4 percent of structural fires (99) were set by juveniles.<sup>1</sup> The report does not include greater investigation into the number of fires set by youth; the intentional or unintentional nature of youth-set fires; or the incendiary mechanisms used. A deeper look at existing data, described in this report, supports the theory that the number of incidents involving juveniles is underreported.

The purpose of this supplemental report is to delve deeper into NFIRS data fields and provide a more accurate count of youth-set fires and the characteristics of those fires.

These more complete data can

- better contribute to prevention-and-intervention program planning
- improve data collection on youth fire-setting behavior in the future

## Issues Coding and Counting Youth-Set Fires

The juvenile data included in the *Fire in Minnesota* report are not derived directly from Minnesota's database; rather they're compiled from the National Fire Incident reporting System (NFIRS) created and maintained by the U.S. Fire Administration (USFA). The accuracy of information in the USFA database is uncertain for several reasons. One, the newest NFIRS software introduced in 1999 (Version 5.0) uses a fire-cause hierarchy that has resulted in a steady increase in percentage of cases where the fire cause is listed as "unknown." The hierarchy was originally classified for structure fires and captures 13 different causes, one of which is "child playing" with fire (Figure 1).<sup>2</sup> According to the USFA, "incidents that do not fit well into the structure category are often assigned as unknown."<sup>3</sup>

Figure 1. <b>Hierarchy of Cause Grouping</b> <i>Fire in the United States, 1995-2004, 14<sup>th</sup> Edition</i>	
Cause Category	Definition
Exposure	Caused by heat spreading from another hostile fire
Incendiary/Suspicious	Fire deliberately set or suspicious circumstances
Child Playing	Includes all fires caused by children playing with any materials contained in the categories below
Natural	Caused by the sun's heat, spontaneous ignition, chemicals, lightning, static discharge
Smoking	Cigarettes, cigars, pipes as accidental heat of ignition

Heating	Includes central heating, fixed and portable local heating units, fireplaces and chimneys, water heaters as source of heat
Cooking	Includes stoves, ovens, fixed and portable warming units, deep fat fryers, open grills as source of heat
Electrical Malfunction	Includes wiring, transformers, meter boxes, power switching gear, outlets, cords, plugs, lighting fixtures as source of heat
Appliances	Includes televisions, radios, phonographs, dryers, washing machines, vacuum cleaners, hand tools, electric blankets, irons, electric razors, can openers, dehumidifiers, water cooling devices, air conditioners, refrigeration equipment as source of heat
Other Equipment	Includes special equipment (radar, X-ray, computer, telephone, transmitters, vending machine, office machine, pumps, printing press); processing equipment (furnace, kiln, other industrial machines); service, maintenance equipment (incinerator, elevator); separate motor or generator; vehicle in a structure; unspecified equipment
Open Flame, Spark	Includes torches, candles, matches, lighters, open fire, ember, ash, rekindled fire, backfire from internal combustion engine as source of heat
Other Heat	Includes fireworks, explosives, heat or spark from friction, molten material, hot material, all other fires caused by heat from fuel-powered objects, heat from electrical equipment arcing or overloading, heat from hot objects not covered by above groups
Unknown	Cause of fire undetermined or not reported

The cause hierarchy that previously included “child playing” with fire has been modified to include “other playing.” *Child playing* and *other playing* are now coded together as “Playing with Heat Source” and can include not only youth but also adults misusing fire. This new coding schema makes it harder to isolate youth firesetting incidents from the data.

Jim Crawford, Project Manager from Vision 20/20, further cited issues with counting youth-set fires using the NFIRS in Fire Rescue Magazine (2013).<sup>4,5</sup> Crawford stated that the scope of youth firesetting incidents relies on data from the NFIRS and, in a 2009 analysis done by the NFPA, it was reported that the data collected in NFIRS for this type of incident is problematic. Notably, the definitions for youth firesetting vary. Depending on who enters the data, these fires could be categorized as *fire-play* or *fire-setting* — and *fire-play* does not classify intentionally set fires.

As an additional concern, there is no standard data entry protocol for entering cases of fires involving juveniles. A responder may choose to enter an incident as “intentional fire” rather than “playing with fire.” The hierarchy would result in the incident coded as intentional, and would not indicate that the firesetter was a youth. Conversely, a youth-set fire may be categorized as unintentional, especially for younger children, and be coded as misuse of fire, undetermined — or even left blank. In any of these cases, a child fire-starter misses an opportunity for intervention.

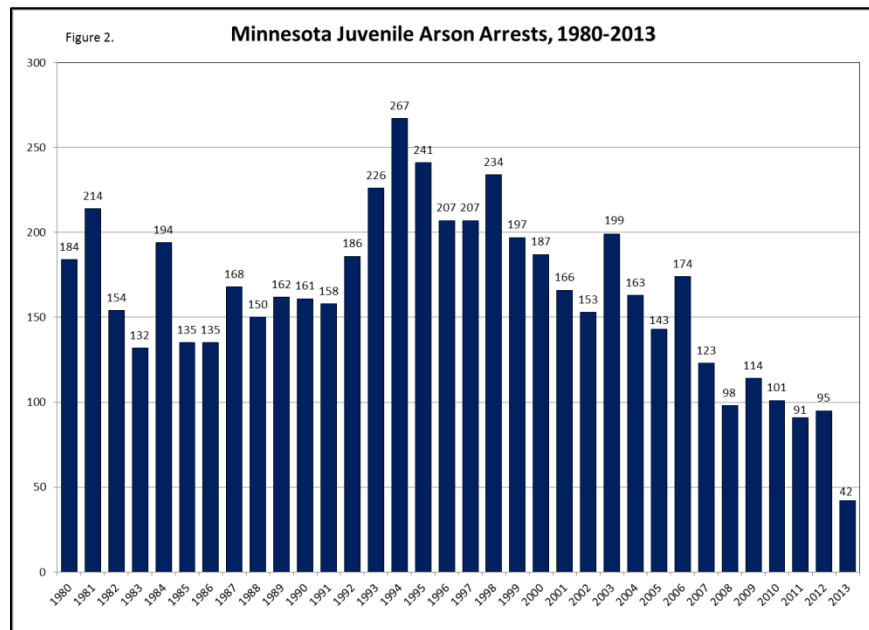
In order to truly understand the level of youth involvement in firesetting in Minnesota, additional research was required for 2013 into individual case notes and narratives.

## Underrepresentation of Youth-Set Fires in Minnesota

The number of fires set by youth, or otherwise involving youth as a contributing factor, is underreported.

In Minnesota's 2013 *Fire in Minnesota* report, there were 99 cases of youth-set fires recorded from 2008 through 2012, with no 2013 data available. An analysis of Minnesota data for the year 2012 found 157 cases of fires set by minors with "age as a factor", and the Anoka County *Youth Firesetting Intervention Program* alone processed 92 juvenile from 2008 through 2012,<sup>6</sup> indicating that the level of juvenile firesetting in the state is underreported in the national data.

Youth firesetting is also underrepresented in juvenile justice data. The Minnesota Bureau of Criminal Apprehension (BCA) maintains juvenile arrest data. Traditionally more than 50 percent of Minnesota arson arrests are children under 18 years old. In 2012, there were 95 juvenile arrests in which the most serious charge recorded was arson. Adults accounted for an additional 175 arson arrests.<sup>7</sup>



Lack of clarity arises from the following facts:

Arrest data also uses a hierarchy method, and additional arson arrests may have occurred in which arson was not the most serious offense charged. Also, officers responding to youth firesetting may charge youth with a lesser offense, such as disorderly conduct, negligent fires or fireworks. It is also common for law enforcement to divert youth firesetters to programs rather than making an arrest. For all these reasons, youth firesetting is also underrepresented in juvenile justice data.

Figure 2 illustrates the trend of juvenile arson arrests between 1980 and 2013.<sup>8</sup> Arson arrests have declined as of 2013 to 42 juveniles and 102 adults. According to the USFA, the national estimate remains that juvenile arson accounts for 50 percent of all arson arrests (USFA National Fire Academy).<sup>9</sup>

## Minnesota Youth Firesetting, 2013 Data

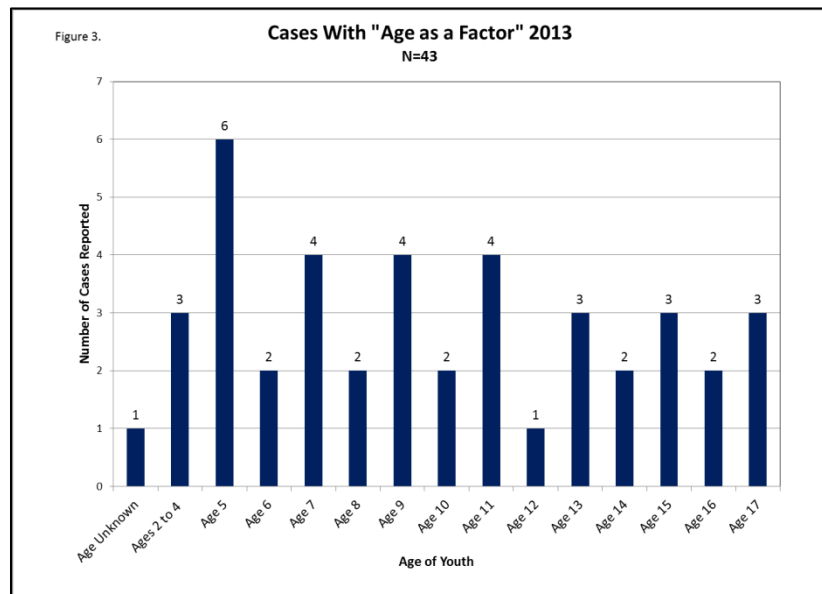
To more accurately investigate the nature of juvenile firesetting in Minnesota, 2013 data was explored specifically in Minnesota's dataset using *ImageTrend*, the Minnesota State reporting software.

### ◆ Age as a Factor: Identified Cases = 43

One *ImageTrend* data field allows fire departments to report if "age is a factor" in the fire. State data specialists identified 43 cases where *age as a factor* was captured in the report. When *age as a factor* was selected, narratives included comments such as:

- "Fire in second floor of house started by a child playing with a lighter"
- "Garage set on fire by youngsters playing with fire."
- Fire started in basement by juvenile."

Figure 3 illustrates the age distribution of the 43 cases with *age as a factor* entered by the fire departments in 2013.



### ◆ Playing with Ignition Source: Identified Cases = 115

An additional *ImageTrend* database search was completed to identify cases where "Playing with Ignition Source" had been selected. This is a more difficult search, as NFIRS 5.0 software does not make a distinction between children and adults playing with fire. Investigation into the case narratives was needed to isolate incidents involving youth. This search yielded an additional 115 cases of youth-set fires that were distinct from the "age as a factor" cases.

The following is an example of a case narrative where a juvenile was identified. Note that the cause of the fire was coded as "unintentional." The subsequent *Ignition Factor* was coded as "playing with ignition source," revealing youth firesetting.

*Paged out to one that had been burned. Updated while en-route to increase victims to 3. On arrival R11 found child that had hair on head burnt off, and 2 adult males that had burns/blisters to hands caused by putting out the fire. No damage to the structure. According to residents the juvenile patient was playing on the upper floor near the kitchen. One of the adults heard a clicking sound and then heard screaming. The adults went towards the screams and see the juvenile's hair on fire. Both adults attempted to*

*extinguish by rolling the juvenile on the floor and putting her in the shower. Patient #1 : 9-year-old female, singed hair and burn on back of neck and upper back..."*

*Cause: Unintentional*

*Ignition Factors: Playing with ignition source*

#### ◆ Narrative Key Word Search: Identified Cases = 85

Finally, a keyword search was completed in the narratives of all 2013 *ImageTrend* incidents for the following terms: Youth, Juvenile, Child, Adolescent, Students, Youngster, Kid, Teenager and Teen. With these search criteria, 481 potential cases were identified. Through a careful review of the narratives, many cases were excluded, such as "child reported fires," cases where adults "escaped with children," and false positives, such as: "sixteen unit building." In total, 161 cases were identified as potentially involving youth as firesetters.

Of the 161, 32 were classified as "likely involving youth" but could not be confirmed. "Likely" cases included narratives such as: "possible *child* playing with matches" and "interviewed several tenants, however, no one was able to provide any useful information regarding the *juvenile* suspects."

Additional cases likely involving youth include mailbox fires or cases where youth had been witnessed in the area shortly prior to observance of the fire. Again, these cases could not be counted definitively. The "likely" cases involving youth were excluded, resulting in 129 confirmed cases with juvenile firesetters.

Also, 44 cases were excluded because they were previously counted in the *Age as a Factor* or *Playing with Ignition Source* queries. The final count of reported youth-set fires from the narrative keyword search was 85.

#### ◆ Cases Not Involving Fire Reports: Identified Cases = 46

Not all incidents of youth firesetting result in an emergency call or a fire department response. In some cases, a parent notices a child starting fires and contacts the intervention program directly, or a mental health care professional may note the behavior in a juvenile client.

*ImageTrend* software has a module in which fire departments can document youth interventions related to firesetting. As an example, a parent who has concerns about their child's interest in fire, they might bring the child to the fire department for education or information. The fire department could document that intervention session in the *ImageTrend* Youth Firesetting Walk-in Module. The module was created for the Oregon State Fire Marshal's office and unlocked for Minnesota to use in 2013. Not all Minnesota fire departments had access to the module in 2013; more departments will have access in the future.

According to the *ImageTrend* Walk-in Module, 75 youth received firesetting intervention services in 2013. Thirty of these cases were not previously counted in the aforementioned queries. Additionally, the St. Paul Fire Department maintained only paper files for youth interventions (16 new cases). In sum, 58 youths in 46 cases were identified as having received fire safety interventions.

Finally, there are always youth firesetting cases that are not reported in any fire management system. Example: the town of Millville had an incident in May 2013 where four children were misusing fire. One of them, a three-year-old boy, was burned over 50 percent of his body and survived. There was no fire department response to this fire. The incident was documented by a hospital burn unit and came to the attention of the State Fire Marshal Division.

## Total Estimate of Youth-Set Fire Cases = 289

In 2013, **289 cases can be identified as involving one or more juvenile firesetters**. Youth were *likely* involved in an additional 32 cases.

- 43 cases have been identified where *Age is a Factor* in the fire
- 115 cases of youth *Playing with an Ignition Source*
- 85 cases where terminology found in the case narrative described youth involvement
- 46 additional cases yielded by *ImageTrend* Walk-in Module and St. Paul Fire Department files

## Estimated Number of Youths Involved in Firesetting = 471

The method used for this report counts fire department responses to fires, but not the number of individuals involved in starting the fires. Youth tend to act in groups, so a narrative search can help establish how many youth may be involved in firesetting.

Typically, a lone child firesetter is clearly described in case notes. In 2013, 77 instances of youths starting fires independently were documented. Multiple youth fire-starters enumerated or named in each report were counted. Finally, if the narrative indicated multiple youths, such as “a group of kids,” two youth were counted as the most conservative estimate.

Using fire department reports, narrative searches and the *ImageTrend* Walk-In Mode, the following data emerged to reveal **471 total youths involved in firesetting**:

- 178 children who started fires in groups
- 77 children who started fires alone
- **Minimum of 255 children** identified from the narrative search
- At least one youth for each case of *Age as a Factor* (43) and *Playing with Ignition Source* (115)
- 58 youths identified in the *ImageTrend* Walk-in Module

## The Need for Firesetting Prevention and Intervention

Children set many different types of fires. Case narratives illustrate that youth set grass fires, structural fires, fires from smoking, cooking, fireworks and other accidental or negligent behavior such as placing a toy in an oven or trying to burn insects or leaves. While some of these are not strictly “youth-set fires” they do involve unsupervised irresponsible youth who would benefit from firesetting intervention and fire science education in order to prevent future fire activity.

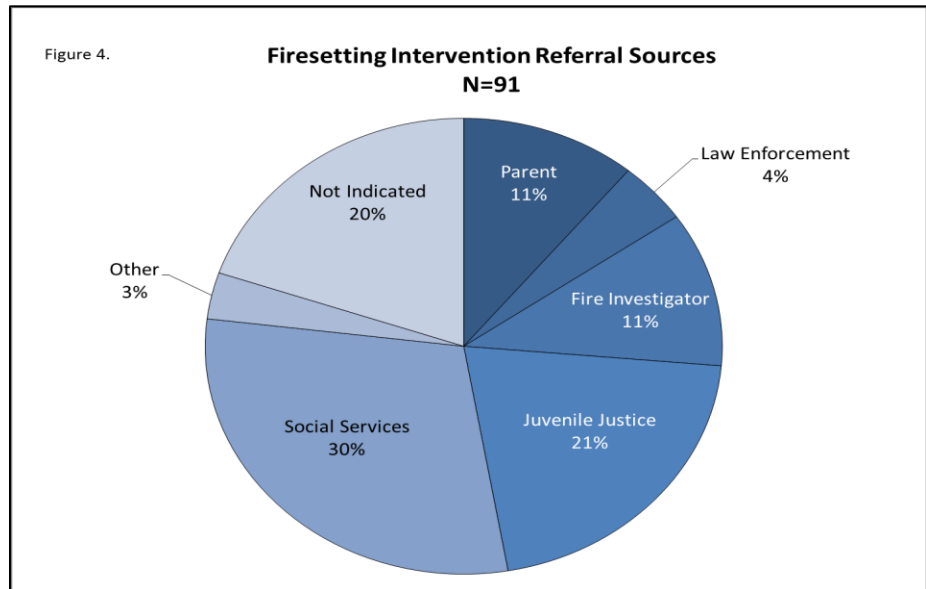


While the data suggest that approximately 471 Minnesota youth were involved in starting fires, be them accidental or intentional, only 91 (19%) are documented as having been referred for an intervention. We do not have any data to indicate if the intervention was successfully completed.

Figure 4 illustrates the referral sources that resulted in youth being referred to firesetting intervention programs.

About half the referrals are from juvenile justice and social services.

Fire investigators and parents each account for 11 percent of referrals.



## Youth Firesetting Prevention and Intervention Services

Youth Firesetting Prevention and Intervention (YFPI) services are available statewide in Minnesota, and supported by the State Fire Marshal Division. These programs teach local professionals how to establish interventions with youth who engage in firesetting. There are opportunities everywhere to educate professionals, such as those in hospitals and burn units, about fire intervention and prevention services. Therapists who see children with firesetting behaviors may not know that Youth Fire Prevention and Intervention help is available, or they may address only the diagnosable disorder. Police officers also need awareness training on youth intervention programs so they can get help for a child fire-starter when they arrive at the scene of an extinguished fire.

Sometimes the best intervention approach for youth is restorative justice, while other times youths need education on fire science. Still others may require mental health assessment and care, and most require a combined approach. In 2013, the State Fire Marshal Division trained 339 community professionals on the topic of youth firesetting. Of those, 31 received official YFPI certification training.

Monica Jenson from the Dakota County Attorney’s Office reports that the Dakota County YFPI Program, working directly with youth, yields less than 1 percent recidivism — meaning that more than 99 percent of youth who have received intervention have not repeated firesetting behavior. Prevention and intervention are effective when delivered in accordance with the State Fire Marshal Division protocol.

## Conclusion

- ◆ In 2013, approximately 300 cases involving approximately 500 youth were documented or called to the attention of the State Fire Marshal Division. These data suggest that youth firesetting is underreported, and emphasize the importance of improving data collection and coding for fires involving youth.
- ◆ The Minnesota Fire Marshal Division is committed to assisting communities in providing high quality prevention and intervention services, and working to simplify data reporting so it is easier for local departments and more accurate for data analysis.
- ◆ The Youth Firesetting Prevention and Intervention Coordinator will continue to monitor data regarding youth firesetting trends in future years to fully understand the issue and evaluate training and program effectiveness. The program will work with local communities and departments to meet the needs of Minnesota.

For further Information on Youth Firesetting Prevention and Intervention Training,  
please call 651-201-7220

## References

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<sup>1</sup> Minnesota Department of Public Safety State Fire Marshal Division. (2014). *Fire in Minnesota 2013*. Retrieved from <https://dps.mn.gov/divisions/sfm/mfirs/Documents/Fire-in-Minnesota-2013-accessible.pdf>

<sup>2</sup> U.S. Fire Administration, 2012. *Fire Cause Category Matrix*. Retrieved from [www.usfa.fema.gov/fireservice/nfirs/tools\\_fire\\_cause\\_category\\_matrix.shtm](http://www.usfa.fema.gov/fireservice/nfirs/tools_fire_cause_category_matrix.shtm)

<sup>3</sup> U.S. Fire Administration. (2007). *Fire in the United States 1995-2004*. Retrieved from <http://www.usfa.fema.gov/downloads/pdf/publications/fa-311.pdf>

<sup>4</sup> Crawford, J. (2013). *The Numbers on Youth Fire Setting*. Published in *FireRescue Magazine* July, 2013. Retrieved from <http://www.firerescuemagazine.com/article/fire-prevention-and-education/numbers-youth-fire-setting>

<sup>5</sup> *Vision 20/20* is an agency committed to national strategies for fire-loss prevention. Webpage. [www.strategiefire.org](http://www.strategiefire.org)

<sup>6</sup> Referral to a firesetting intervention program does not necessarily mean a fire department responded to a structural fire. These cases may not be included in the MFIRS database.

<sup>7</sup> Minnesota Bureau of Criminal Apprehension. (1980-2014). Minnesota Uniform Crime Reports, 1980 to 2013. Available at <https://dps.mn.gov/divisions/bca/bca-divisions/mnjis/Pages/uniform-crime-reports.aspx>

<sup>8</sup> Minnesota Bureau of Criminal Apprehension. (1980-2014). Minnesota Uniform Crime Reports, 1980 to 2013. Available at <https://dps.mn.gov/divisions/bca/bca-divisions/mnjis/Pages/uniform-crime-reports.aspx>

<sup>9</sup> National Fire Academy Youth Firesetting Prevention & Intervention course curriculum Available at [http://nfa.usfa.dhs.gov/ax/pcm/pcm\\_r0629.pdf](http://nfa.usfa.dhs.gov/ax/pcm/pcm_r0629.pdf) page SM 3-6