

# Oregon Industrial Report on 1986-1995 Compensable Claims and Fatalities for Workers Aged 17 and Under

Research & Analysis Section

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by Alicia Matter

## Introduction

Injuries to young workers are of special interest because of the restrictions placed on the types of activity they may perform. Due to factors including less experience, young workers face slightly different workplace hazards than adults. This report presents data about Oregon's work-related industrial injuries, illnesses, and fatalities to workers aged 17 and under. It evaluates accepted disabling workers' compensation claims during the years 1986-1995. Information on claims for workers of all ages can be found in the yearly publication, *Oregon Workers' Compensation Claims Characteristics*.

In Oregon, a disabling claim involves more than three days of time loss, permanent disability, or inpatient hospitalization. An accepted claim means that a workers' compensation insurer has determined that the condition is work-related and compensable. The claims that are not severe enough to be defined as disabling are not reported to the Workers' Compensation Division (WCD). Therefore, this report includes only the most severe cases.

## Highlights

- From 1986-1995 a total of 4,605 disabling claims were accepted for workers aged 17 and under; six of these claims were work-related fatalities.
- WCD received notification of 1,229 accepted disabling claims for workers aged 17 and under in 1977. This number declined to an average of 616 per year from 1986 to 1990, and 305 per year from 1991 to 1995.
- Young workers were six times more likely to suffer burns and five times more likely to be injured by knives than claimants aged 18 and older.
- Fifty-seven percent of young injured workers were 17 years old; 31 percent were 16 years old.
- Forty-one percent of compensable injuries to young workers occurred during the months of June, July, and August.
- Falls and overexertion each caused 22 percent of injuries to young workers.
- Sprains, strains, and tears accounted for 40 percent of injuries to young workers.
- Backs, the most common body part injured by young workers, accounted for 19 percent of injuries.
- Floors, walkways, and ground surfaces were the source of injury to young workers 19 percent of the time.
- The retail industry accounted for over half of the accepted disabling claims for workers aged 17 and under.
- Stock handler was the single most common occupation of young injured workers (11 percent).
- Service occupations such as cooks, waiters, and food preparation workers were the most common group of occupations among young injured workers (44 percent).

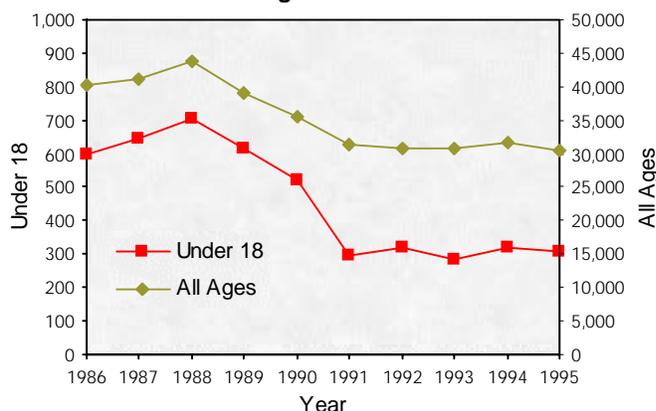
## Analysis of Industrial Injuries and Illnesses

The number of young Oregonians suffering occupational injuries and illnesses has declined dramatically since 1977, when WCD received notification of 1,229 accepted disabling claims for workers aged 17 and under. As a result of HB2900 and the subsequent passage of SB1197, the Oregon workers' compensation system was overhauled between 1987 and 1990. This overhaul further reduced the number of accepted disabling claims for young workers as well as workers of all ages. Compensable claims averaged 616 per year during the five-year period from 1986 to 1990, and 305 claims per year during the five-year period from 1991 to 1995. After a decrease of over 50 percent, the number of compensable claims for workers aged 17 and under remained fairly constant from 1991 to 1995 (Figure 1). The 10-year trend for young workers has paralleled the trend for workers of all ages. During the 1995 calendar year, WCD recorded the acceptance of 307 disabling claims with no fatalities to young workers (Table 1). An estimate of recent claims rates identified the rate for workers aged 17 and under to be approximately one-quarter the rate for workers of all ages<sup>1</sup>.

### Accident event

Falls resulted in the greatest number of claims (1,006) during the 10-year period from 1986 to 1995 (Table 2A). Seventeen-year-olds suffered more than one-half of all falls and 16-year-olds suffered almost one-third. Almost 70 percent of falls were on the same level, most of these to a floor, walkway, or ground surface. Overexertion resulted in the second greatest number of job-related injuries to workers aged 17 and under (1,003 claims), followed by injuries caused by being struck by an object (812). Seventeen-year-olds suffered more than 60 percent of overexertion injuries and 16-year-olds suffered almost 30 percent. Containers were the source of 54 percent of overexertion claims; boxes, cartons, and crates were the containers involved in one-

**Figure 1. Accepted disabling claims for workers aged 17 and under**



third of these injuries. Knives were the source in 25 percent of the "struck by" cases. Boxes, crates, or cartons were the source in more than one-third of "struck by container" injuries.

### Nature of injury

Sprains, strains, and tears were the leading job-related injury to workers aged 17 and under (1,853 claims) during the 10-year period from 1986 to 1995 (Table 2B). Seventeen-year-olds suffered 60 percent and 16-year-olds suffered 31 percent of sprains, strains, and tears. Cuts and lacerations resulted in the second greatest number of claims (826), followed by bruises and contusions (520 claims). Almost one-half of sprains, strains, and tears were caused by overexertion (47 percent), followed by falls (25 percent), then bodily reaction (16 percent). The majority of cuts and lacerations resulted when the claimant was struck by or struck against an object (80 percent). The event of being struck by or striking against an object resulted in 42 percent of bruises and contusions, and falls resulted in 36 percent.

**Table 1. Accepted disabling claims for workers aged 17 and under, Oregon, 1986-95**

Age	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total 1986-95
8 to 14	27	27	31	21	22	11	7	5	13	10	174
15	42	57	73	67	42	21	20	12	16	28	378
16	179	209	209	193	169	88	107	98	96	100	1,448
17	348	354	390	334	286	176	186	169	193	169	2,605
<b>Total under 18</b>	<b>596</b>	<b>647</b>	<b>703</b>	<b>615</b>	<b>519</b>	<b>296</b>	<b>320</b>	<b>284</b>	<b>318</b>	<b>307</b>	<b>4,605</b>

<sup>1</sup>The claims rate for workers aged 17 and under was computed with data provided by the Center for Population Research and Census (CPRC) at Portland State University and the 1996 Oregon Population Survey (OPS). A claims rate

was calculated to be 0.45 per 100 workers aged 17 and under. As published in the 1996 *Summary of Workers' Compensation Claims Characteristics*, the claims rate was calculated to be 1.9 per 100 workers of all ages.

**Table 2A. Accepted disabling claims for workers aged 17 and under by injury or illness event, Oregon, 1986-95**

Event	8- to 14-year-olds		15-year-olds		16-year-olds		17-year-olds		Total under 18	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Falls	44	25.3	79	20.9	328	22.7	555	21.3	1,006	21.8
Overexertion	16	9.2	61	16.1	289	20.0	637	24.5	1,003	21.8
Struck by	49	28.2	64	16.9	232	16.0	467	17.9	812	17.6
Struck against	14	8.0	38	10.1	143	9.9	210	8.1	405	8.8
Bodily reaction	9	5.2	32	8.5	120	8.3	191	7.3	352	7.6
Caught in	19	10.9	42	11.1	97	6.7	171	6.6	329	7.1
Contact with temperature extreme	2	1.1	20	5.3	123	8.5	183	7.0	328	7.1
Transportation accident	12	6.9	21	5.6	36	2.5	65	2.5	134	2.9
Exposure to harmful substance	3	1.7	9	2.4	39	2.7	56	2.1	107	2.3
Assault, violent act by person	1	0.6	3	0.8	9	0.6	21	0.8	34	0.7
Rubbed, abraded	2	1.1	2	0.5	5	0.3	5	0.2	14	0.3
Other	3	1.7	7	1.9	27	1.9	44	1.7	81	1.8
<b>Total</b>	<b>174</b>	<b>100.0</b>	<b>378</b>	<b>100.0</b>	<b>1,448</b>	<b>100.0</b>	<b>2,605</b>	<b>100.0</b>	<b>4,605</b>	<b>100.0</b>

Note: Due to rounding, percentages may not equal 100 percent.  
 "Other" includes non-classifiable codes.

**Table 2B. Accepted disabling claims for workers aged 17 and under by nature of injury or illness, Oregon, 1986-95**

Nature	8- to 14-year-olds		15-year-olds		16-year-olds		17-year-olds		Total under 18	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Sprain, strain, tear	44	25.3	122	32.3	571	39.4	1,116	42.8	1,853	40.2
Cut, laceration	35	20.1	78	20.6	265	18.3	448	17.2	826	17.9
Bruise, contusion	23	13.2	41	10.8	159	11.0	297	11.4	520	11.3
Fracture	41	23.6	59	15.6	145	10.0	223	8.6	468	10.2
Heat burn, scald	3	1.7	21	5.6	125	8.6	186	7.1	335	7.3
Multiple traumatic injuries	10	5.7	18	4.8	39	2.7	69	2.6	136	3.0
Dislocation	1	0.6	7	1.9	26	1.8	39	1.5	73	1.6
Rheumatism, except the back	1	0.6	7	1.9	20	1.4	43	1.7	71	1.5
Skin disorder	2	1.1	6	1.6	20	1.4	16	0.6	44	1.0
Concussion	5	2.9	1	0.3	13	0.9	16	0.6	35	0.8
Other	9	5.2	18	4.8	65	4.5	152	5.8	244	5.3
<b>Total</b>	<b>174</b>	<b>100.0</b>	<b>378</b>	<b>100.0</b>	<b>1,448</b>	<b>100.0</b>	<b>2,605</b>	<b>100.0</b>	<b>4,605</b>	<b>100.0</b>

Note: Due to rounding, percentages may not equal 100 percent.  
 "Other" includes non-classifiable codes.

### Part of body

Backs were the most common body part injured by young workers (876 claims) during the 10-year period from 1986 to 1995 (Figure 2). Seventeen-year-olds suffered 65 percent of back injuries and 16-year-olds suffered 28 percent. Fingers and fingertips were the second most frequently injured body part (624 claims), followed by hands, except fingers (412 claims), and knees (411 claims). Overexertion was the leading cause of back injuries (64 percent) and falls caused 21 percent. Fingers and fingertips were struck by or against an object 65 percent of the time, and caught in or compressed by equipment or objects 25 percent of the time. Hands, except fingers, were struck by or against an object 44 percent of the time and were injured when they came into contact with a temperature extreme 21 percent of the time. Knees were most likely to be injured during falls (44 percent) or by bodily reaction of the young worker (22 percent).

### Source of injury

Floors, walkways, and ground surfaces were the leading source of injury to young workers (857 claims) during the 10-year period from 1986 to 1995 (Table 2C). Fifty-four percent of injuries from floors, walkways, and ground surfaces were to 17-year-olds and 33 percent were to 16-year-olds. Containers were the source of injury in 788 claims, with boxes, crates, and cartons causing 32 percent of these injuries. People were the source of injury in 472 claims. The bodily motion of the injured worker was the source in 15 percent of these claims, and overexertion with another person was the source in 18 percent.

Figure 2. Part of body affected

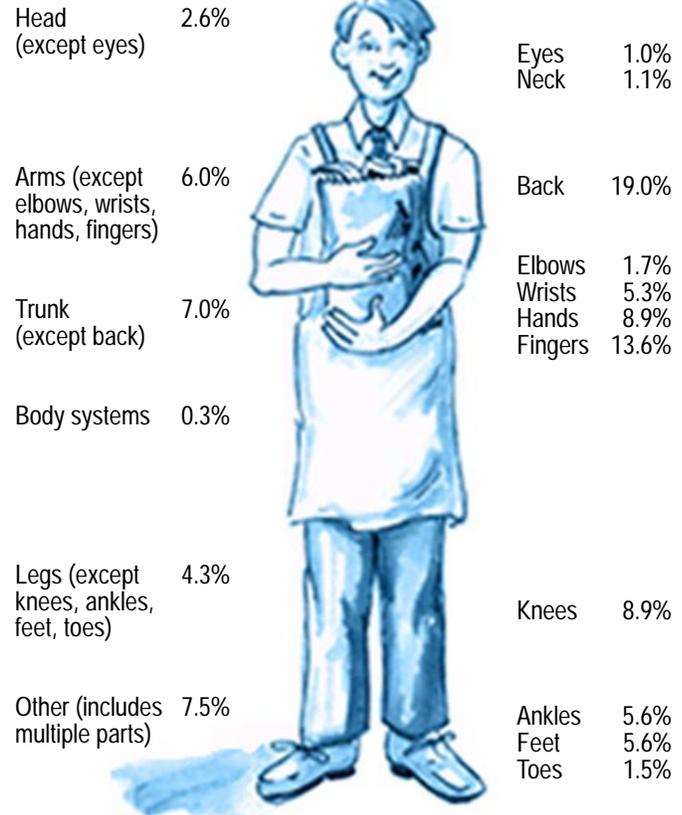


Table 2C. Accepted disabling claims for workers aged 17 and under by source of injury or illness, Oregon, 1986-95

Source	8- to 14-year-olds		15-year-olds		16-year-olds		17-year-olds		Total under 18	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Floor, walkway, ground	40	23.0	67	17.7	284	19.6	466	17.9	857	18.6
Container	12	6.9	44	11.6	244	16.9	488	18.7	788	17.1
Person	12	6.9	36	9.5	148	10.2	276	10.6	472	10.2
Machinery	14	8.0	40	10.6	127	8.8	226	8.7	407	8.8
Knives	17	9.8	22	5.8	62	4.3	133	5.1	234	5.1
Highway vehicle	18	10.3	30	7.9	57	3.9	112	4.3	217	4.7
Plant or industrial vehicle	14	8.0	18	4.8	51	3.5	100	3.8	183	4.0
Food products	3	1.7	10	2.6	65	4.5	101	3.9	179	3.9
Structural elements	1	0.6	5	1.3	32	2.2	57	2.2	95	2.1
Water	0	0.0	3	0.8	39	2.7	41	1.6	83	1.8
Wood, lumber	2	1.1	4	1.1	19	1.3	37	1.4	62	1.3
Nonstructural metal materials	1	0.6	8	2.1	14	1.0	24	0.9	47	1.0
Cleaning, polishing agents	1	0.6	5	1.3	11	0.8	17	0.7	34	0.7
Pipe, ducts, tubing	4	2.3	8	2.1	11	0.8	10	0.4	33	0.7
Plants, trees, vegetation	3	1.7	3	0.8	27	1.9	21	0.8	54	1.2
Other	32	18.4	75	19.8	257	17.7	496	19.0	860	18.7
Total	174	100.0	378	100.0	1,448	100.0	2,605	100.0	4,605	100.0

Note: Due to rounding, percentages may not equal 100 percent.  
"Other" includes non-classifiable codes.

## Comparison to workers of all ages

Young workers were 58 percent as likely to overexert themselves compared to claimants aged 18 and older. They were 6.3 times more likely to be injured by contacting a temperature extreme, and 1.6 times more likely to be struck by an object. Young workers were 74 percent as likely to suffer sprains, strains, and tears. However, they were 2.4 times more likely to suffer cuts and lacerations and 6.3 times more likely to suffer heat burns and scalds. Upper extremities of youths were 1.5 times more likely to be injured than upper extremities of older workers. However, young workers were 65 percent as likely to injure their backs as older workers. Knives were 5.5 times more likely to be the source of injury to young workers. The source of injury to young workers was 54 percent as likely to be the motion of their own body when compared to older workers.

## Industry division

The retail sector accounted for more than one-half of the accepted disabling claims for workers aged 17 and under (Table 3). Sixty-one percent of young retail workers with an accepted disabling claim were employed at eating and drinking establishments, and 22 percent were employed at food stores. Falls were the most common event in the retail sector, resulting in 24 percent of injuries to young retail workers. Overexertion accounted for 21 percent of injuries to young retail workers and the event of being struck by or against an object resulted in 27 percent.

More than one-half of young injured retail sector workers were 17 years old. More than 90 percent of young workers injured at eating and drinking establishments were employed in food preparation and food service occupations such as cooks, waiters, and kitchen workers. Non-farm laborers accounted for more than 70 percent of young workers injured at food stores and general merchandise establishments.

The service sector accounted for more than 14 percent of compensable disabling claims for young workers (653 claims). Hotels and lodging establishments and health service establishments both employed 22 percent of young service sector workers who were injured. Fourteen percent were injured at social service establishments. Overexertion was the most common event in the services sector (33 percent), followed by falls (21 percent), then the event of being struck by or against an object (18 percent). More than one-half of all young injured service sector workers were 17 years old.

**Table 3. Accepted disabling claims for workers aged 17 and under, by industry division, Oregon, 1986-95**

Industry division <sup>1</sup>	8 to 14	15	16	17	Total
Agriculture	80	102	144	211	537
Forestry, fishing, logging	2	5	16	34	57
Mining	0	0	0	1	1
Construction	3	9	30	87	129
Manufacturing	3	14	64	182	263
Transportation/public utilities	0	2	13	23	38
Wholesale trade	1	5	19	72	97
Retail	34	143	922	1,512	2,611
Eating, drinking places	21	97	588	888	1,594
Food stores	7	32	193	334	566
General merchandise	1	1	62	139	203
Retail, other	5	13	79	151	248
Finance, ins., real estate	2	3	14	21	40
Services	36	72	175	370	653
Amusement/recreation	3	9	24	17	53
Health services	3	9	32	98	142
Hotels, lodging places	5	13	42	85	145
Motion pictures	1	1	1	8	11
Social services	12	18	25	38	93
Services, other	12	22	51	124	209
Government	13	22	48	90	173
Local	0	0	10	20	30
State	13	22	38	70	143
Nonclassified	0	1	3	2	6
<b>Total</b>	<b>174</b>	<b>378</b>	<b>1,448</b>	<b>2,605</b>	<b>4,605</b>

<sup>1</sup>Includes all industries covered by Oregon workers' compensation laws.

More than one-half of young service sector workers injured at hotels and lodging establishments were maids and housemen, and almost 40 percent of those injured were employed in food preparation and service occupations. Health service establishments employed 70 percent of young injured workers as health or nursing aides and 16 percent in food preparation occupations. Social service establishments employed 17 percent of young injured workers in food service occupations, 10 percent as health or nursing aides, and 9 percent as janitors.

The agriculture sector accounted for 12 percent of compensable claims for workers aged 17 and under (537 claims). Thirty-nine percent of young injured agriculture sector workers were 17 years old. The leading event was being struck by or against an object (31 percent), followed by falls (19 percent), then overexertion (15 percent). Eighty-five percent of young injured agriculture workers were employed as farm laborers.

## Occupation

Service occupations and laborers were the most common types of occupations among injured workers aged 17 and under. Injured 16- and 17-year-olds were most likely to be stock handlers (both 12 percent). Seventeen-year-olds were also likely to be non-construction laborers, food counter workers or miscellaneous food preparers (each 8 percent). Injured 16-year-olds were also likely to be food counter workers (11 percent) or miscellaneous food preparers (10 percent). Twenty-five percent of injured 15-year-olds were farm laborers, 8 percent were miscellaneous food preparers, and 7 percent were non-construction laborers. Forty-four percent of injured eight- to 14-year-olds were farm laborers.

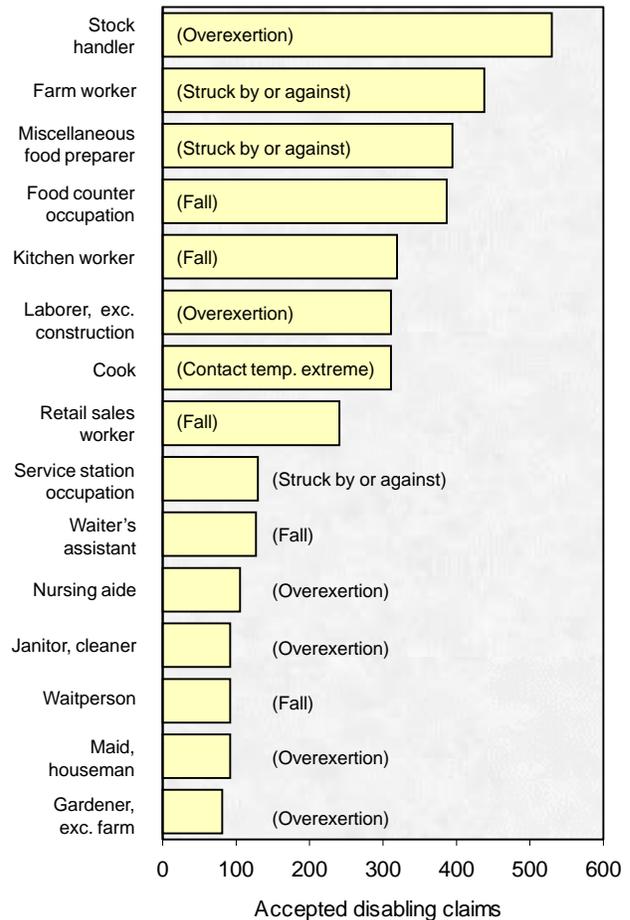
Among service occupations, the most common events resulting in work-related injuries were falls (25 percent) and overexertion (20 percent). A floor, walkway, or ground surface was the source of injury in 85 percent of falls. The source of overexertion injuries was a person other than the worker 19 percent of the time, and boxes, crates, or cartons 15 percent.

For young farm laborers, the event of being struck by an object resulted in the most injuries (28 percent), followed by falls (18 percent), and overexertion (14 percent). Farm laborers aged 17 and under were struck by vehicles 8 percent of the time and tractors 2 percent. Fifty-six percent of falls were to the ground, and 33 percent were to floors or walkways. The sources of overexertion injuries involving young workers included pipes, ducts, or tubing 24 percent of the time and buckets, baskets, or pails 10 percent.

For young non-farm laborers, the most common events resulting in injury were overexertion (29 percent) and being struck by an object (21 percent). The sources of overexertion injuries were boxes, crates, or cartons 25 percent of the time and bags, sacks, or totes 16 percent. Non-farm laborers aged 17 and under were struck by vehicles (which were not in normal operation) 27 percent of the time and boxes, crates, or cartons 11 percent.

Figure 3 lists occupations with the greatest number of claims along with the leading event responsible for injuries to these young workers. Stock handlers were most likely to overexert themselves on containers (64 percent), and more specifically by lifting boxes, crates, or cartons (34 percent). Both farm laborers and food preparers were most likely to be struck by an object or strike against an object.

**Figure 3. Accepted disabling claims for selected occupations, with most common event, 1986-95**



Note: The event in parenthesis is the most common event.

## Tenure

Seventy-four percent of work-related injuries to minors occurred during the first year of employment (3,385 claims). Twenty-six percent of these injuries occurred during the first month of employment (888 claims). The number of claims decreased as tenure increased until the seventh month (Figure 4). There were considerably fewer claims during the second year of employment (405 claims).

## Gender and month of injury

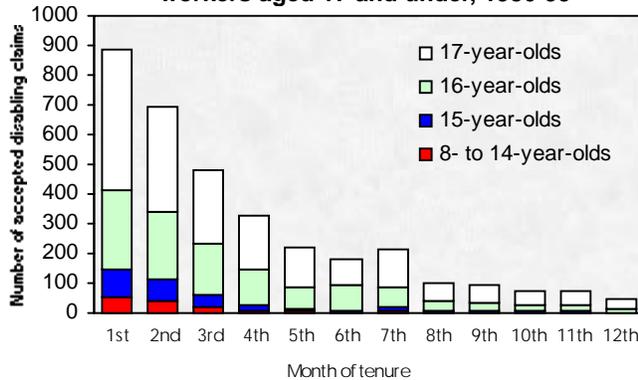
Young male workers were more likely to have a compensable claim than young female workers (Table 4). Sixty percent of minors with claims accepted from 1986 to 1995 were male. The ratio of injured male to female 17-year-olds was also 60:40. This ratio did not change significantly for 15- or 16-year-olds. However, 72 percent of compensable workers from eight to 14 years old were male. Forty-one percent of compensable injuries to workers aged 17 and under occurred in June, July, and August (Figure 5).

## Fatalities

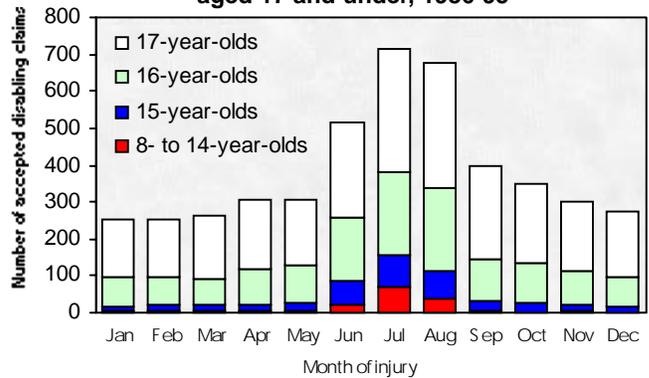
From 1986 to 1995, the Workers' Compensation Division of the Department of Consumer and Business Services recorded the acceptance of six claims for fatally injured workers aged 17 and under. Three of these fatal accidents involved vehicles, two occurred

when the youths fell approximately 70 feet, and one young worker was struck by a tree. All six fatally injured youths were male, and 83 percent were 16 or 17 years old. Table 5 lists the age of the worker and the description of the event that caused the fatality.

**Figure 4. Tenure, first year of employment, workers aged 17 and under, 1986-95**



**Figure 5. Month of injury, workers aged 17 and under, 1986-95**



**Table 4. Accepted disabling claims for workers aged 17 and under, by gender, Oregon, 1986-95**

Age	Gender	Number	Percent
8 - 14	Female	49	28.2
	Male	125	71.8
15	Female	154	40.7
	Male	224	59.3
16	Female	604	41.7
	Male	844	58.3
17	Female	1,043	40.0
	Male	1,562	60.0
Total	Female	1,850	40.2
	Male	2,755	59.8

**Table 5. Accepted disabling fatalities to workers aged 17 and under, Oregon, 1986-95**

Year	Description of work related fatality
1986	No fatalities to workers under 18.
1987	A 16-year-old farm worker was crushed when the tractor he was driving overturned.
1988	No fatalities to workers under 18.
1989	A 16-year-old apprentice log faller was struck by a tree in his first week of employment.
1990	A 16-year-old pizza delivery driver was killed in a highway motor vehicle accident.
1991	A 14-year-old was killed when he fell 70 feet to the concrete floor of a grain elevator.
1992	A 17-year-old was killed when he overturned his forklift.
1993	No fatalities to workers under 18.
1994	A 17-year-old rock climbing instructor was killed in a 70-foot fall.
1995	No fatalities to workers under 18.

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Information Management Division  
350 Winter St NE, Room 300  
Salem, OR 97310