

***MMWR Editor's Dream: Submission that is innovative,
scientifically rigorous, useful, and well written***

MMWR

Morbidity and Mortality Weekly Report

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Acknowledgment

- Paul Z. Siegel, MD, MPH

**Strategies to foster innovative,
scientifically rigorous, useful and well
written submission**

Sections of Scientific Article

Title

Abstract

Introduction

Methods

Results

Discussion



Journal Article

MMWR Full Report

(1400 word max)

Title

Title

Abstract

Introductory ¶

Introduction

Methods

Methods

Results

Results

Actions Taken*

Discussion

Discussion

Summary Box

*when appropriate

Journal Article

MMWR Full Report

(1400 word max)

MMWR Notes from the Field

(500 word max)

Title

Title

Title

Abstract

Introductory ¶¶

Brief Introduction

Introduction

Methods

Description of investigation

Methods

Results

Magnitude/extent of event

Results

Actions

Outcomes

Discussion

Taken*

Preliminary conclusions

Discussion

Actions

Summary Box

* when appropriate

***MMWR* Outbreak Investigation Report**

- Not typical scientific paper styles - special case
- Tell the Story (a “chronological narrative”)
 - Preliminary Investigation
 - Full Investigation

**Regardless of format, think
from the editors' point of
view:**

Editor's Dream:

Every article
submitted to the journal presents
information that is new and useful

**How do you know if something is
“new and useful”?**

**Short answer:
Do a thorough literature review.**

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One caveat . . .

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**Consulting with a SME provides additional assurance that
what you think is new really is new.**

What's better than consulting with a SME?

Having a SME as a co-author



**How do you get a SME to be a
co-author. . ?**



Resurgence of Progressive Massive Fibrosis in Coal Miners — Eastern Kentucky, 2016

Weekly / December 16, 2016 / 65(49):1385–1389

Coal workers' pneumoconiosis, also known as "black lung disease," is an occupational lung disease caused by overexposure to respirable coal mine dust. Inhaled dust leads to inflammation and fibrosis in the lungs, and coal workers' pneumoconiosis can be a debilitating disease. The Federal Coal Mine Health and Safety Act of 1969 (Coal Act),* amended in 1977, established dust limits for U.S. coal mines and created the National Institute for Occupational Safety and Health (NIOSH)–administered Coal Workers' Health Surveillance Program with the goal of reducing the incidence of coal workers' pneumoconiosis and eliminating its most severe form, progressive massive fibrosis (PMF),† which can be lethal. The prevalence of PMF fell sharply after implementation of the Coal Act and reached historic lows in the 1990s, with 31 unique cases identified by the Coal Workers' Health Surveillance Program during 1990–1999. Since then, a resurgence of the disease has occurred, notably in central Appalachia ([Figure 1](#)) (1,2). This report describes a cluster of 60 cases of PMF identified in current and former coal miners at a single eastern Kentucky radiology practice during January 2015–August 2016. This cluster was not discovered through the national surveillance program. This ongoing outbreak highlights an urgent need for effective dust control in coal mines to prevent coal workers' pneumoconiosis, and for improved surveillance to promptly identify the early stages of the disease and stop its progression to PMF.

New

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New

Useful

Question 1:

If you do a thorough literature review, it is unlikely that consulting with a SME will help you determine whether your study adds new/useful information to the literature.

- a. True
- b. False

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Let's move from
“new and useful”
to
“scientifically rigorous”

Scientific rigor



**Methods
section**

Characteristics of a strong Methods section

- **Clearly present and define all analysis variables**
- **Respect chronology**
- **Describe original methods in detail; otherwise give references**
- **Study methods are appropriate to the study objectives**
- **Statistical methods are appropriate**

Definitions

catastrophic outcome due to marijuana use:

“death or severe bodily injury directly or indirectly nonvehicular related with marijuana use or the behavior that caused the subsequent catastrophic outcome” ?????

Definitions

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This isn't a definition:

A ratio has a numerator and a denominator; a definition of a ratio needs to specify what the numerator and denominator are.

Definitions

 Poverty status, measured by the poverty-to-income ratio, was derived from the established federal poverty level, which is revised annually to reflect changes in the cost of living as measured by the Consumer Price Index.

 Poverty status was defined by using the poverty income ratio (PIR), an index calculated by dividing family income by a poverty threshold specific to family size. The PIR is reported in three levels: below the poverty level, one to less than two times the poverty level, and two or more times the poverty level.


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 Orthogonal polynomial contrasts were used to identify significant increases or decreases across ordinal demographics (e.g. age group), and pairwise t-tests identified differences by subgroup (e.g. sex).

**The best way to avoid
problems/errors with statistical
methods:**

The best way to avoid problems/errors with statistical methods:

- **Consult with a statistician early in the project**
- **Perhaps ask the statistician to write the statistical methods portion of the paper**

Sometimes definitions and statistical methods require a lot of words to describe in detail.

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**When that happens:
if the definitions/statistical methods have been published previously, describe them briefly and provide a reference.**

Question 2:

The scientific rigor of a paper is reflected mostly in which section?

- a. Introduction
- b. Methods
- c. Results
- d. Discussion

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The scientific rigor of a paper is reflected mostly in which section?

- a. Introduction
- b. **Methods**
- c. Results
- d. Discussion

OK:
new, useful, and scientifically rigorous

What about well written. . ?

**The most damaging writing
“errors” are ones that appear
to reflect scientific flaws:**

The most damaging writing “errors” are ones that appear to reflect scientific flaws.

Purpose:

Investigation goals were to **examine clinical presentation and treatments associated with substance use among persons presenting with fentanyl-positive urine drug screen** among the state’s substance-using population

Methods:

To gain more information about fentanyl use among substance-users in the area that Hospital A predominantly serves, we **obtained information on drug-related deaths from the county medical examiner’s office**

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“We used proportional hazards modeling to compare new HIV diagnoses among intervention and comparison groups with **time-dependent** Cox modeling.”

“We conducted a **time-varying analysis** by using the cumulative duration of the first period.”

Do “time-dependent” and “time-varying” mean the same thing?

Shifting terminology is likely to create confusion

“We used proportional hazards modeling to compare new HIV diagnoses among intervention and comparison groups with time-dependent Cox modeling.”

“We conducted a time-varying analysis by using the cumulative duration of the first period.”

Do “time-dependent” and “time-varying” mean the same thing?

Avoid this confusion by providing clear definitions in the Methods section.

Question 3:

Varying the terminology you use is a good idea, because it helps to hold the reader's interest.

- a. True
- b. False

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- a. True
- b. False

British Medical Journal:

- Is it new?
- Is it true?
- Do we care?

Role of tables and figures to illustrate key results

Editor's Review

- Read introduction – provides context
- Review tables and figures
 - What story do they tell?
 - Clear message(s) from them?
- Review methods
 - Are they appropriate for data?
- Review results
 - Do they highlight important findings from tables and figures?

Author's Process

- **BEFORE writing - create tables and figures**
 - Can you distill your results to tell a story about what is new and useful?
 - What format tells your results most clearly, table or figure or combination?
 - What is the clear message(s) that each tells?
 - Obtain approval from all co-authors

Table versus Figure

- Figures – typically display trends and patterns of relationships
- Tables – represent compiled data in simple form
- Do not repeat information in tables and figures
- Review MMWR's for examples and find suitable ones for models

Trends in prevalence of ever having sexual intercourse among high school students by grade in school

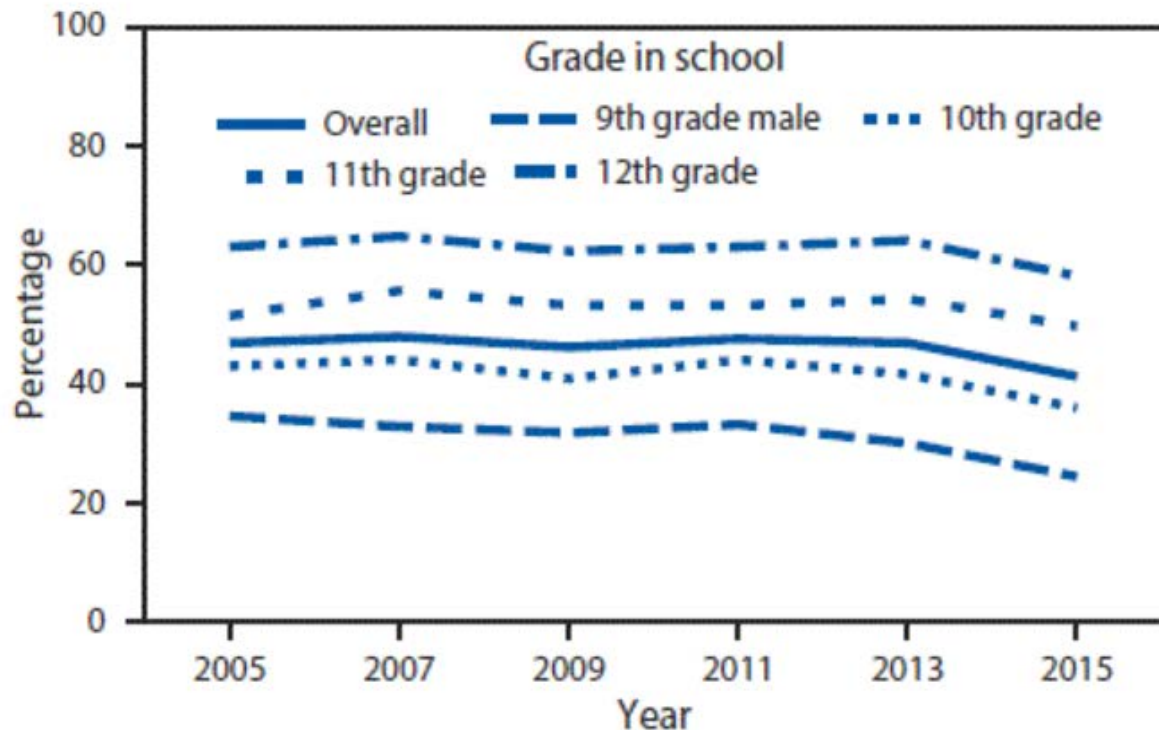
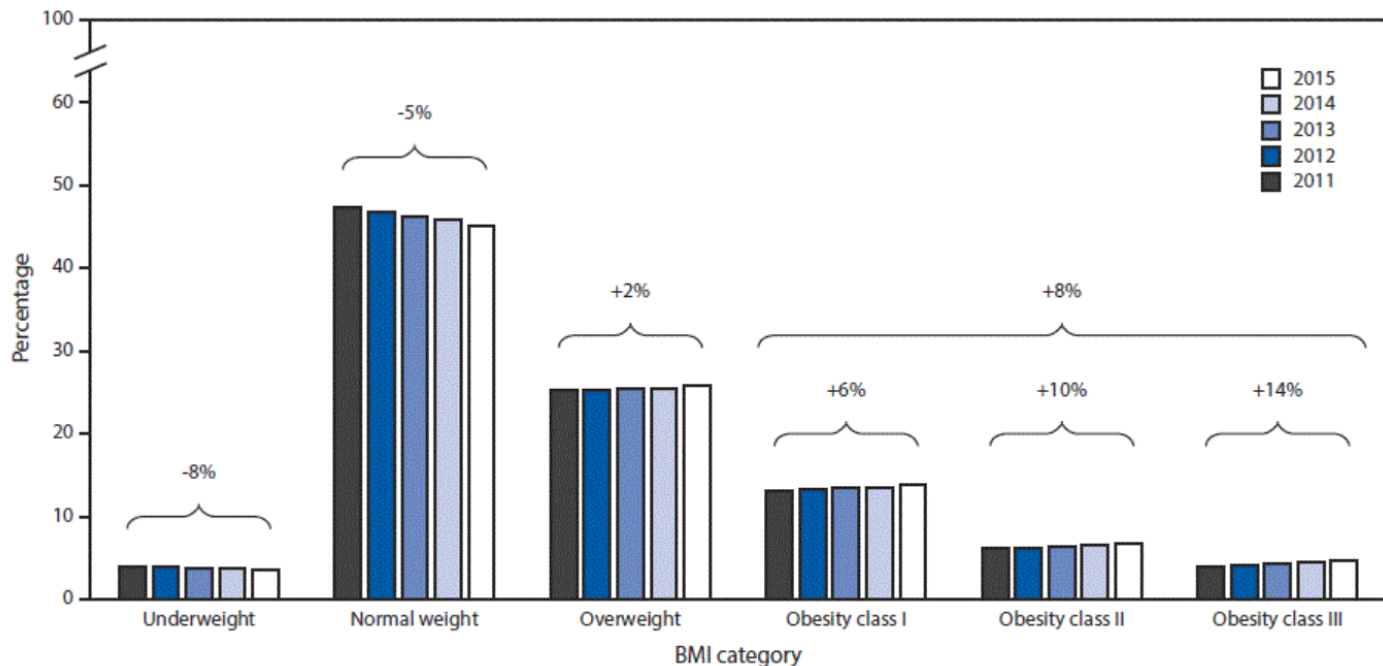
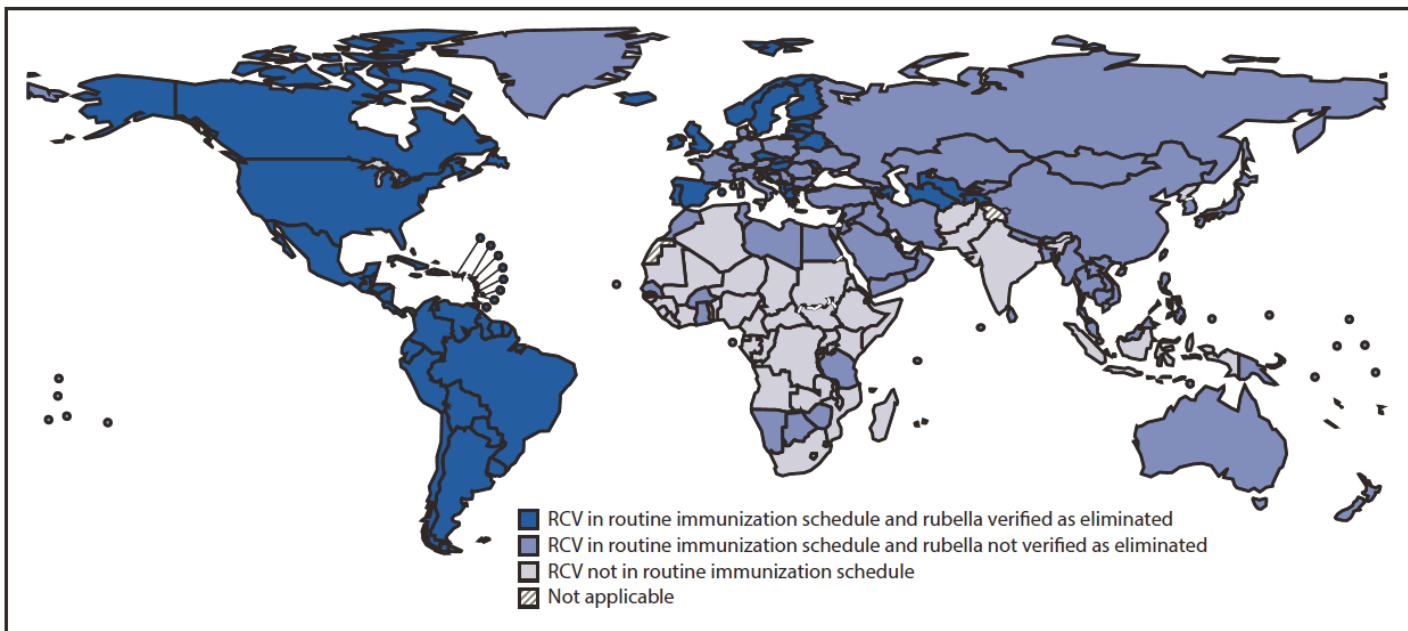


FIGURE. Prevalences and relative changes in prepregnancy BMI categories* among women with a live birth — 36 states, District of Columbia, and New York City,† 2011–2015



Abbreviation: BMI = body mass index (kg/m^2).

FIGURE. Rubella-containing vaccine (RCV) introduction and status of rubella elimination,* by country — World Health Organization, 2016



Tables

- Important to think about organization of tables
- Well organized – reader quickly grasps meaning
- Disorganized – reader confused about data, or importance of data
- *MMWR* “limitations”
 - Portrait format
 - No more than 11–13 columns

TABLE 1. Prevalence of short sleep duration* on an average school night among middle school students in nine states combined and among nine states and seven large urban school districts, by selected characteristics — Youth Risk Behavior Surveys, 2015

Site/Characteristic	No.†	Prevalence % (95% CI)
Nine state surveys combined§	52,356	57.8 (56.7–58.9)
Sex		
Female	26,549	59.6 (58.2–61.0)¶
Male	25,608	56.0 (54.6–57.4)¶
Grade		
6	14,060	61.3 (59.5–63.0)**,††
7	19,153	59.2 (57.8–60.5)§§,††
8	18,707	53.1 (51.6–54.7)§§,**

Question 4:

Which of the following statements is NOT generally true or recommended?

- a. Figures typically display trends and patterns of relationships
- b. Tables summarize data
- c. Repeat information in tables and figures
- d. Review MMWR's figures and tables and find suitable ones for models

Question 4:

Which of the following statements is NOT generally true or recommended?

- a. Figures typically display trends and patterns of relationships
- b. Tables summarize data
- c. **Repeat information in tables and figures**
- d. Review MMWR's figures and tables and find suitable ones for models

Strategies to obtain feedback prior to submission

Authorship – 3 Conditions

- 1. Substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data**
- 2. Drafting the report or revising it critically for important intellectual content**
- 3. Final approval of the version to be published.**

International Committee of Medical Journal Editors

<http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

Feedback

- Obtain co-authors ok on tables and figures
- SME review of tables and figures
- Internal presentation
 - Tables and figures
 - All components of report
- Conference presentation
 - All components of report
 - Draft report immediately before or after

Writing

- Determine who is responsible for which component of report
 - Gap – invite someone else to participate
 - E.g., Statistician or laboratorian
- Set agreed upon deadlines and remind authors of them

Question 5:

- To reduce confusion, it is wisest to share a completely drafted report with co-authors, rather than sharing components as they are developed.
 - a. True
 - b. False

Question 5:

- To reduce confusion, it is wisest to share a completely drafted report with co-authors, rather than sharing components as they are developed.
 - a. True
 - b. False

Questions

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

