

Narrative Review of Pollutants and Regulations in Family-Based Childcare Settings

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INTRODUCTION

- ❑ The early stages of child development is a vulnerable timespan where exposure to environmental hazards can substantially impact childhood health outcomes
- ❑ Chronic exposure to environmental toxins during development can have long lasting health consequences
- ❑ Research has traditionally focused on facility-based childcare and schools, however, many younger children receive child-care in a family-based setting which is a largely unresearched area
- ❑ Family based child-care is provided in the home has different environmental hazards than those in a facility or school setting. Regulations and licensing of childcare providers differ across the US for family-based childcare.
- ❑ Many child-care providers have different levels of knowledge regarding environmental hazards and safe practices in a home setting

Aim 1

Assess the environmental pollutants in family-based child-care settings

Aim 2

Determine the presence of environmental training and regulations for caregivers

Aim 3

Identify any gaps in existing literature, training, and regulations of family-based childcare

METHODS

- ❑ A narrative review was conducted using multiple databases with phrases such as “common indoor pollutants”, “childcare licensure & regulations”, and “indoor air quality control”.
- ❑ Peer-reviewed articles and journals were selected based on connection to childcare regulations and environmental health.

RESULTS

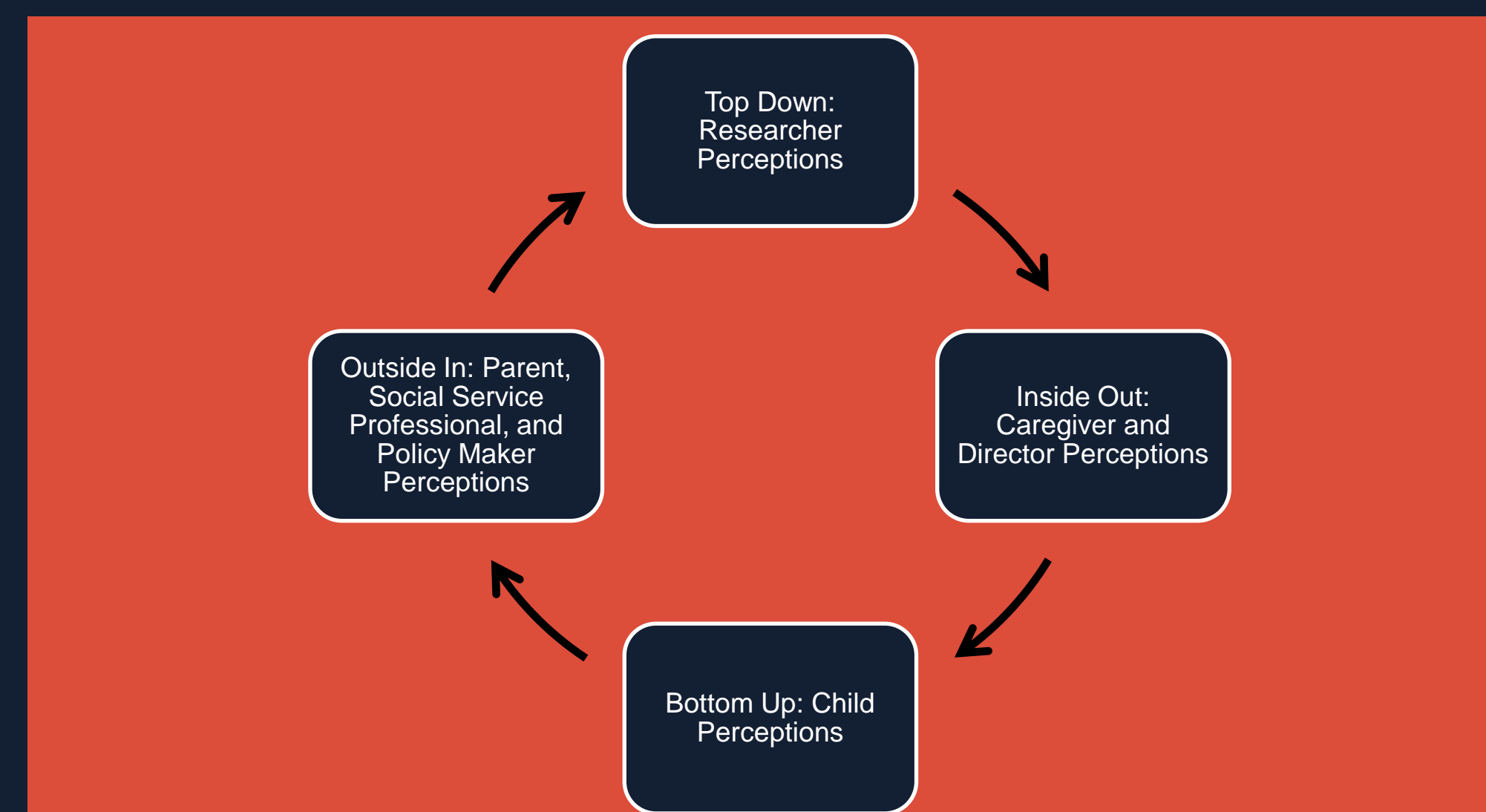
Environmental Pollutants in the Home

- ❑ Some of the main pollutants in the home are Particulate Matter (PM), Nitrogen Dioxide (NO₂), and Volatile Organic Compounds (VOCs) (Vardoulakis, et al., 2020).
- ❑ Major sources include smoking, cooking vehicle emissions, use of incense/candles, cleaning products, and activity of individuals (Vardoulakis, et al., 2020; Nishihama, et al., 2021).
- ❑ Most state licensing requires FCC caregivers to use bleach or other disinfectant. However, bleach has proven to produce known carcinogens and respiratory irritants (Querdibitty, et al., 2022).
- ❑ Many FCC homes use neurotoxic pesticides such as organophosphates or pyrethroids as a form of pest-control (Stephens, et al., 2017)

Training Programs for Providers

- ❑ Available training programs for childcare providers lack advance courses pertaining to environmental health.
- ❑ Research conducted on a 2016 childcare training program created for childcare providers saw only one third of completed training pertains to planning a safe and healthy environment (Ackerman, 2017).
- ❑ Trainees average an estimated 10-12 hours of online training annually with 75% of offered courses being beginner’s level with only 25% dedicated for intermediate and advanced level courses (Ackerman, 2017).
- ❑ Perspectives on the importance of training for providers differ when comparing different stakeholders (Harrist, Thompson, Norris, 2007).

Figure 1



Perception of Stakeholders. Adapted from “Defining Quality Child Care: Multiple Stakeholder Perspectives”, by Amanda H. Stacy T., Deborah N (2007), *Early Education And Development*, 18:2, 305-226

Environmental Pollutants

Lack of research on pollutants in FCC homes

There is limited knowledge of and accessibility to green cleaning products

Lack of safe pest management interventions for FCC caregivers

Regulations and Trainings

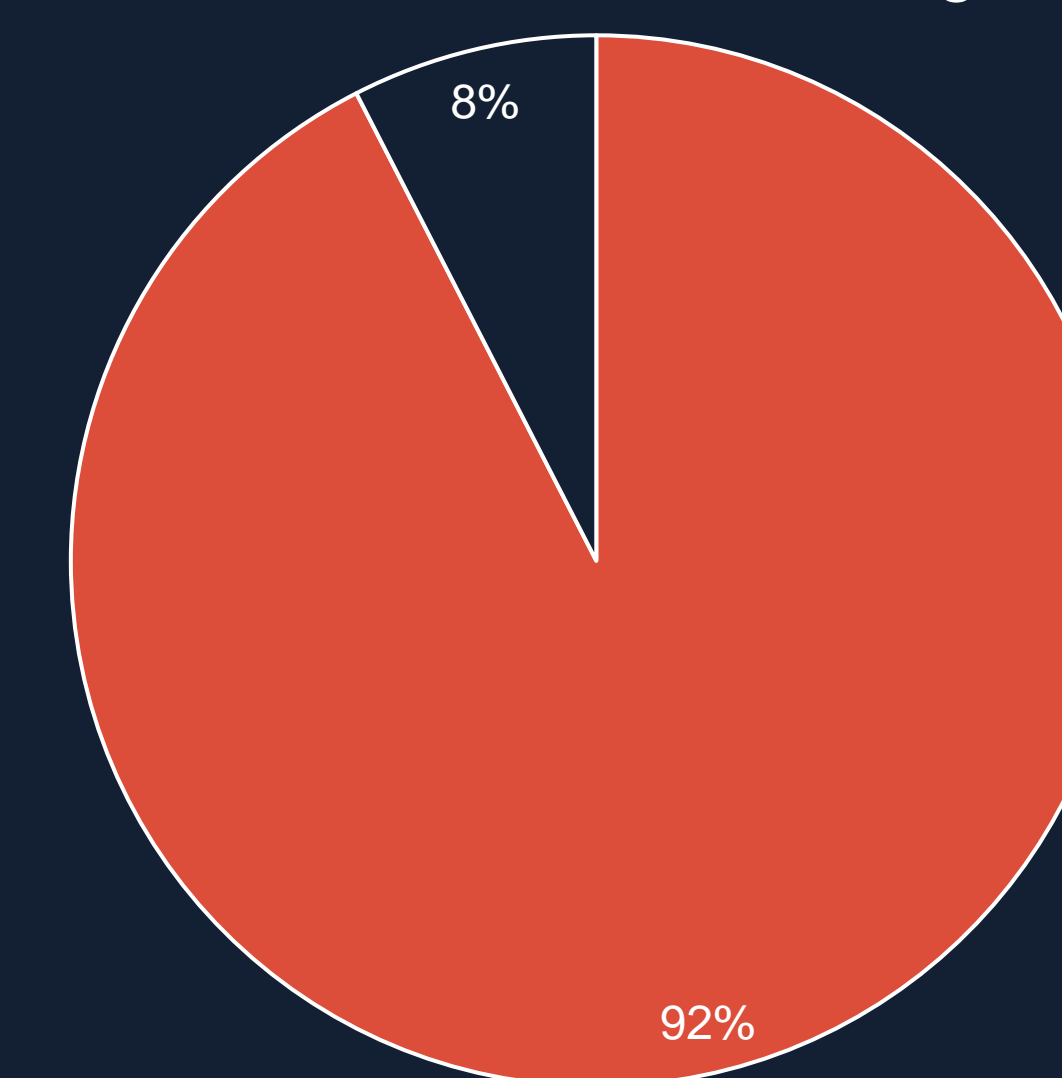
Training courses lack environmental health inclusion

Considerably less data on how effective current training programs are for providers

Lack of federal regulations for environmental health inspections

Figure 2

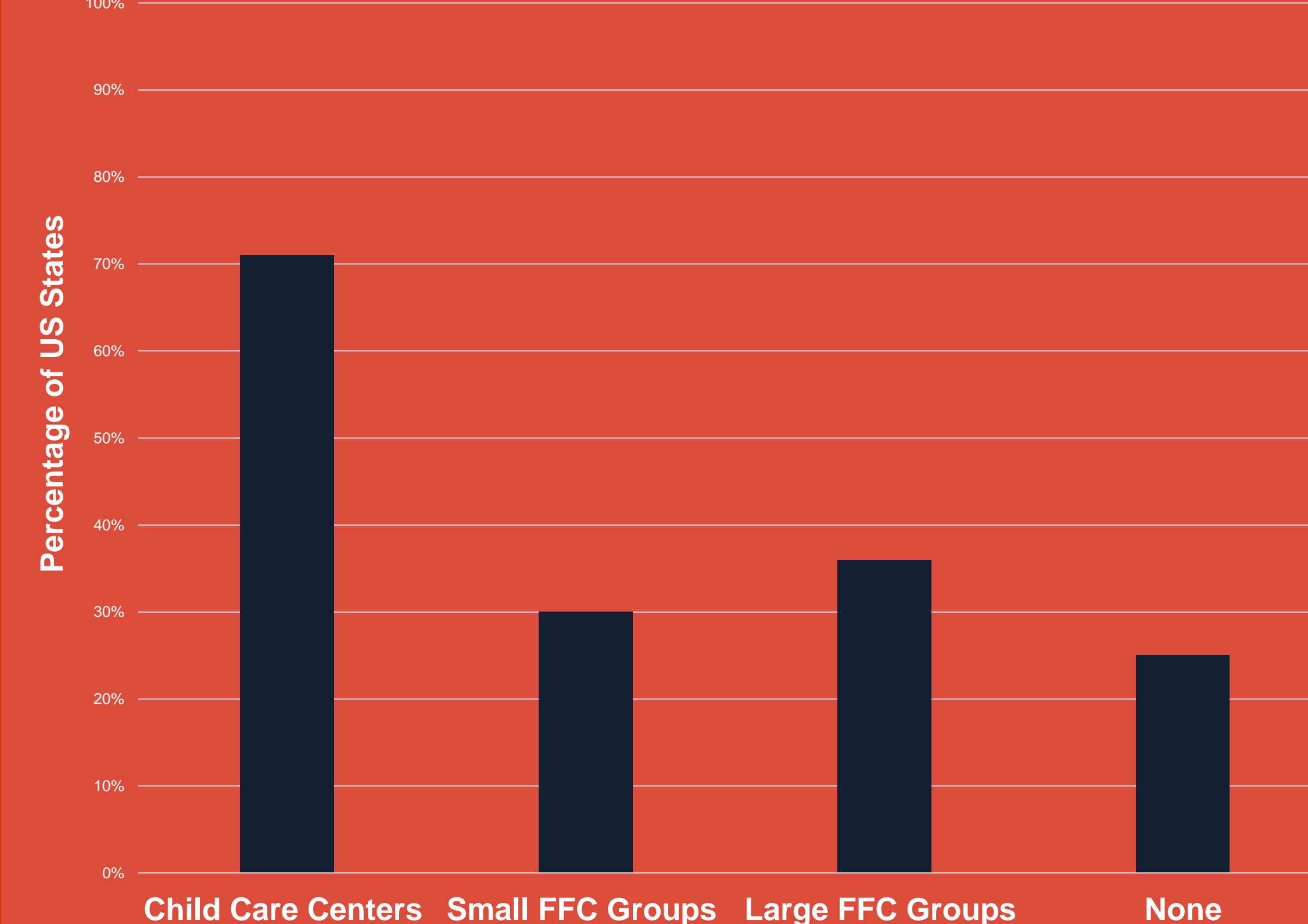
Environmental Health Literature in Daycare and Family-Based Childcare Settings



Percentage of literature detailing environmental health in daycare centers and FCC homes. Data sourced from PubMed

Figure 3

Regulations for Environmental Health Inspections in Licensed Child Care Facilities



Percentage of US States that require Environmental Health Inspections. Data sourced from the 2017 Child Care Licensing Survey

CONCLUSION

- ❑ There is considerable evidence on the impact of indoor environmental pollutants on children in facilities but a lack of research in a family-based child-care setting
- ❑ There is a considerable lack of successful environmental health training programs for providers
- ❑ This narrative review highlights the need for research on pollutants in a family-based child-care setting and comprehensive training program focused on environmental health for child-care providers
- ❑ This review sheds light on the need for additional requirements and regulations for environmental health training in family-based child-care

Rec 1

• Increase research on pollutants and their impact on childhood health in family-based childcare

Rec 2

• Place more emphasis on regulating environmental health competency of childcare providers

Rec 3

• Training regulations and air quality control in family-based childcare settings should be inclusive in the scope of policy makers

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START

Student Aging Researchers in Training



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