



World Health
Organization



Setting a limit on the lead content in paint

Joanna Tempowski, WHO, Geneva

Global Alliance to
Eliminate Lead Paint

Outline

- Background
- Global Alliance to Eliminate Lead Paint
- Model law and guidance for regulating lead paint
- Global and regional progress in regulating lead paint
- Justification for stopping the addition of lead to paint

Background

- Lead compounds may be added to paint to give properties e.g. colour, rapid drying, corrosion resistance
- The addition of lead compounds can result in very high concentrations of lead in paint e.g. >10,000 ppm
- Lead paint is a source of human exposure to lead, especially for children and workers
- International organizations, governments, industry and NGOs have called for lead paint to be phased out

Global Alliance to Eliminate Lead Paint

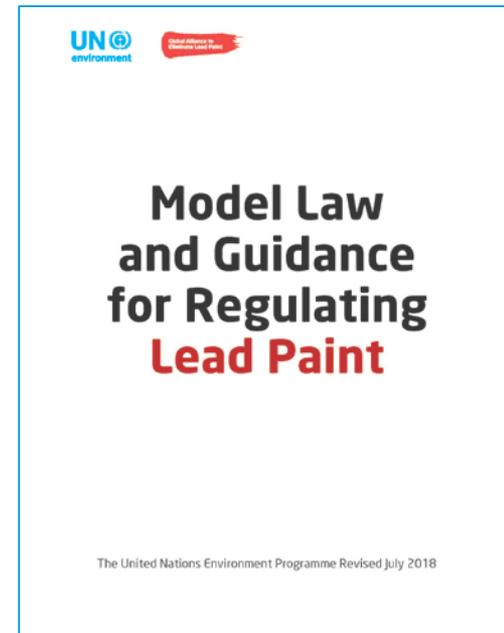
(Lead Paint Alliance)



- Created by the international community to accelerate progress towards stopping the addition of lead to paint
- Jointly led by United Nations Environment Programme and World Health Organization
- Alliance partners include governments, civil society organizations and paint industry
- Goal is to prevent exposure of children and workers to lead paint
- Working towards the global phase-out of lead paint through legally binding control measures in every country

Model Law and Guidance

- Developed by UNEP, WHO, US EPA and other Lead Paint Alliance partners
- Provides global best practices in regulating lead in paint
- Provides a template that can be adapted to each country's existing legal framework



Key principles of the Model Law



- **Prevention:** A strong law to limit lead content in new paints will prevent new exposures to lead
- **Industry responsible for testing:** Manufacturers and importers are responsible for testing their paints and certifying compliance with lead limit
- **Compliance responsibility throughout value chain:** All businesses along the value chain are responsible for ensuring compliance, including manufacturers, importers, distributors, and retailers
- **Low maximum limit:** Recommended limit of 90 ppm total lead is achievable when manufacturers stop the intentional use of lead additives such as lead pigments and avoid lead-contaminated raw materials

Global progress in regulating lead paint



- 73 countries have laws - most new laws follow UNEP Model Law (90 ppm lead limit)
- Recent laws: Cameroon, Ethiopia, Kenya, Tanzania, India, Nepal, Philippines, Israel, Bangladesh
- Examples of current activity:
 - Brazil and South Africa are revising their existing laws to reduce lead limit from 600 to 90 ppm
 - Zambia and Rwanda are finalizing a new 90 ppm standard

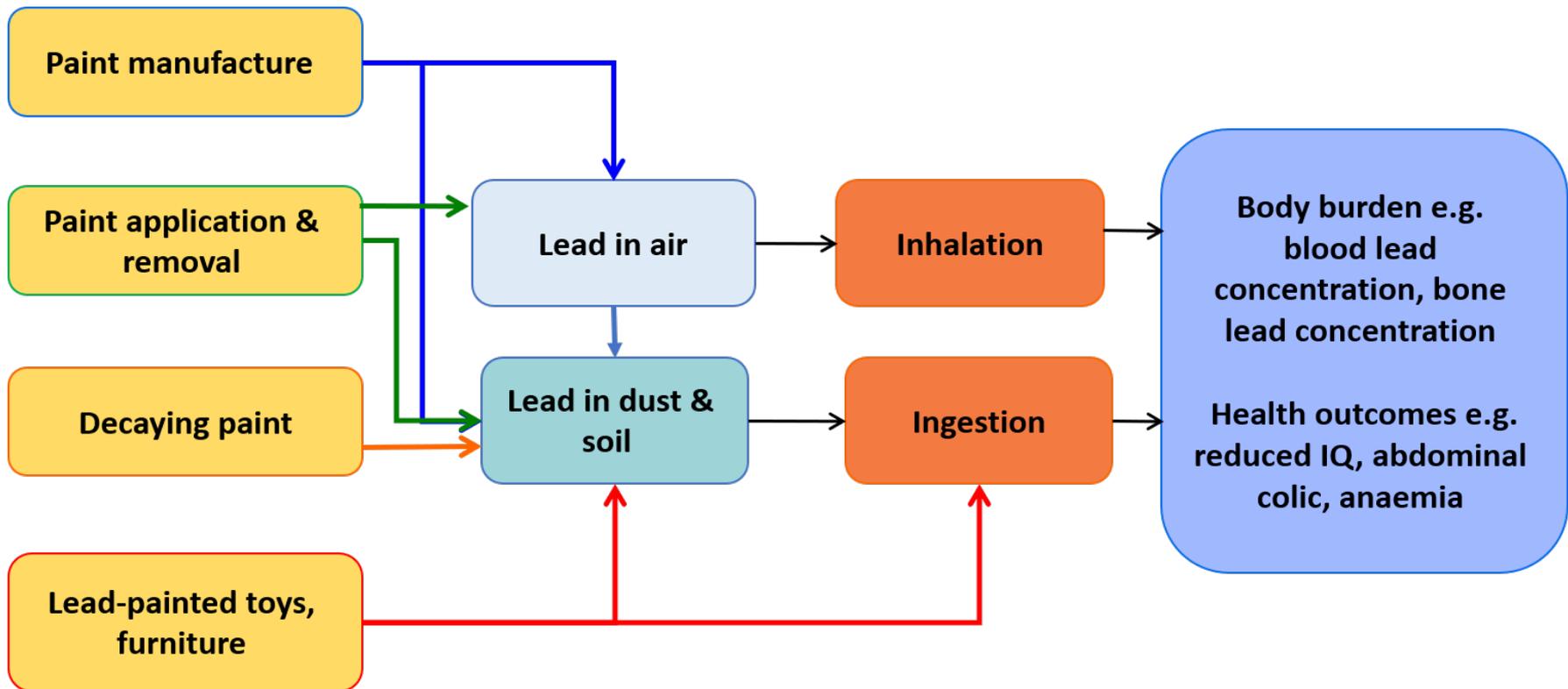
Regional progress in regulating lead paint



- The Lead Paint Alliance is working with 12 countries in the region to establish lead paint laws.
- Eurasian Economic Union
 - Has draft regional standard that proposes a 90 ppm limit
- Ukraine
 - Has draft law that establishes a 90 ppm limit
- Georgia
 - Action on drafting law is planned for 2020; part of national health action plan

Justification for stopping the use of lead in paint

Multiple pathways of exposure to lead from paint



Lead in paint is a source of lead in dust



- Isotopic studies confirm that lead in paint contributes to lead in dust
- Deteriorating lead paint associated with higher amounts of lead in household dust and soil
- Lead content in paint associated with lead content in dust:
 - 50% increase in window paint lead was associated with a 5% increase in floor dust lead (Dixon 2007)
 - exterior railings with a lead loading of ≥ 2.6 mg/cm² associated with approx 50% higher lead loading in household dust (Lucas 2014)

Lead in dust related to increased blood lead



- Pooled analysis of 12 studies showed lead-contaminated house dust is major source of intake for children with BLL of 10-25 $\mu\text{g}/\text{dL}$

The lower the lead content the lower the hazard

- Children who eat flakes of lead paint can develop lead poisoning
- The lower the lead content the less likely a child will eat enough paint to cause harm
 - 500 ppm of lead – regular ingestion of 6-7 flakes of paint could reduce IQ
 - 90 ppm of lead – harmful dose is ~31 flakes



Regulating lead paint reduces lead exposure



- In Canada France & USA homes built before lead paint regulation have higher concentration of lead in dust than homes built after regulation
- In France and USA children living in older homes where there is lead paint have higher blood lead concentrations than children living in homes built after lead paint regulation
 - e.g. when lead limit was 10,000 ppm children in homes with lead paint 16x more likely to have BLL >30 $\mu\text{g}/\text{dL}$ than children in homes with no lead paint

Workers also need protecting



- Study in Kenya found significant lead exposure in workers making paint
 - 78% of air samples exceeded US 8-hour permissible exposure limit ($50 \mu\text{g}/\text{m}^3$)
 - 75.6% of blood samples $>30 \mu\text{g}/\text{dL}$ lead
- Workers spraying and stripping lead paint can have high exposures

Why 90 ppm limit on lead content?



- Lead is harmful at all levels of exposure
- There is no therapy that can reverse the effects of lead on brain development and the cardiovascular system
- Possible that some effects could be mitigated by good nutrition, good quality education, nurturing environment & healthy lifestyle choices – but many people do not have access to these
- It is essential to limit exposure to lead as much as possible
- 90 ppm is the lowest maximum level currently required by any country

Comparison with some guideline values for lead exposure



- WHO/FAO tolerable dietary intake – no health protective value can be established
- WHO drinking water guideline value: 10 µg/L
 - Provisional value, not health-based but based on technical feasibility – concentrations should be maintained as low as reasonably practical

A 90 ppm limit on lead content is technically feasible and promotes trade



- Non-lead-based pigments, dryers and anti-corrosives are widely available for oil-based paints, and are used by many manufacturers to produce high quality paints
- Paint made with compounds that are not lead-based will have a lead content <90 ppm
- If care is taken to source uncontaminated raw materials ingredients the lead content can be much lower than 90 ppm
- 90 ppm is becoming an accepted international standard around the world for lead levels in some paints
 - Already used in a number of countries, for example, Canada, Kenya, Nepal, the Philippines, the United Republic of Tanzania, and the United States of America
 - Paints meeting a 90 ppm limit will have a larger regional global market

Conclusions



- Given the data that links lead in paint to human exposure and to lead poisoning, action by industry is needed
- Paints with the required properties can be made without adding lead
- As more countries regulate lead paint the market for such paints will continue to shrink
- Stopping the addition of lead to paint makes public health and business sense