Setting a limit on the lead content in paint

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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

- Paint manufacture
- Paint application & removal
- Decaying paint
- Lead-painted toys, furniture

Pathways:
- Lead in air
  - Inhalation
  - Body burden e.g. blood lead concentration, bone lead concentration
- Lead in dust & soil
  - Ingestion
  - Health outcomes e.g. reduced IQ, abdominal colic, anaemia

Global Alliance to Eliminate Lead 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 µg/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 were 16x more likely to have BLL >30 µg/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 µg/m³)
  - 75.6% of blood samples >30 µg/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.