

Round table:
**HEALTH PROFESSIONALS
CAN HELP**

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Health professionals can help

i.e.: medical epidemiologists

MUST produce the right and timely diagnosis:

- 1) right risk estimate about cancer and other diseases
among the exposed populations;
- 2) right risk estimate about specific risk factors
among specific group of patients

Figura 3 - Mappa di concentrazione per metalli pesanti (tracciante per gli inceneritori)

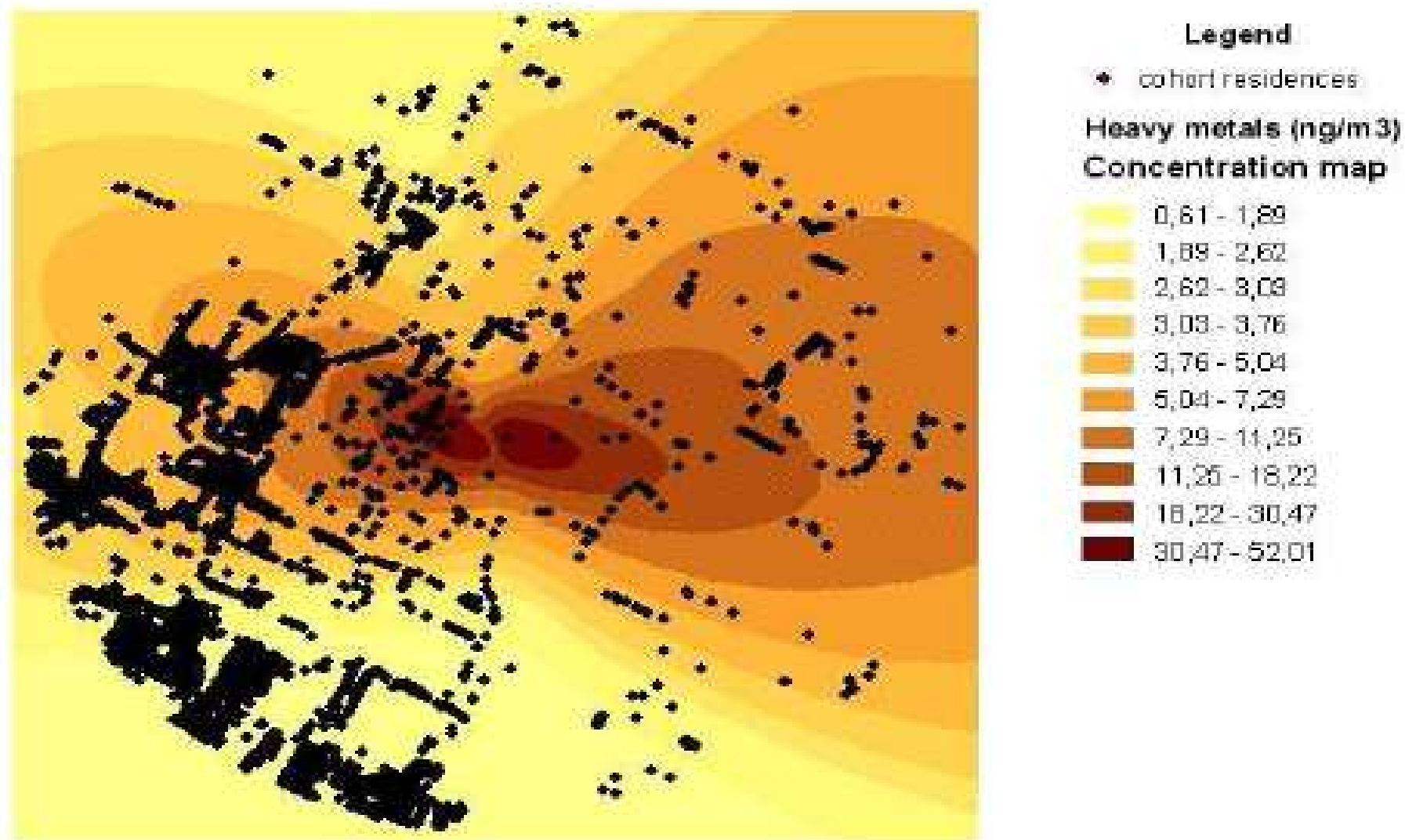
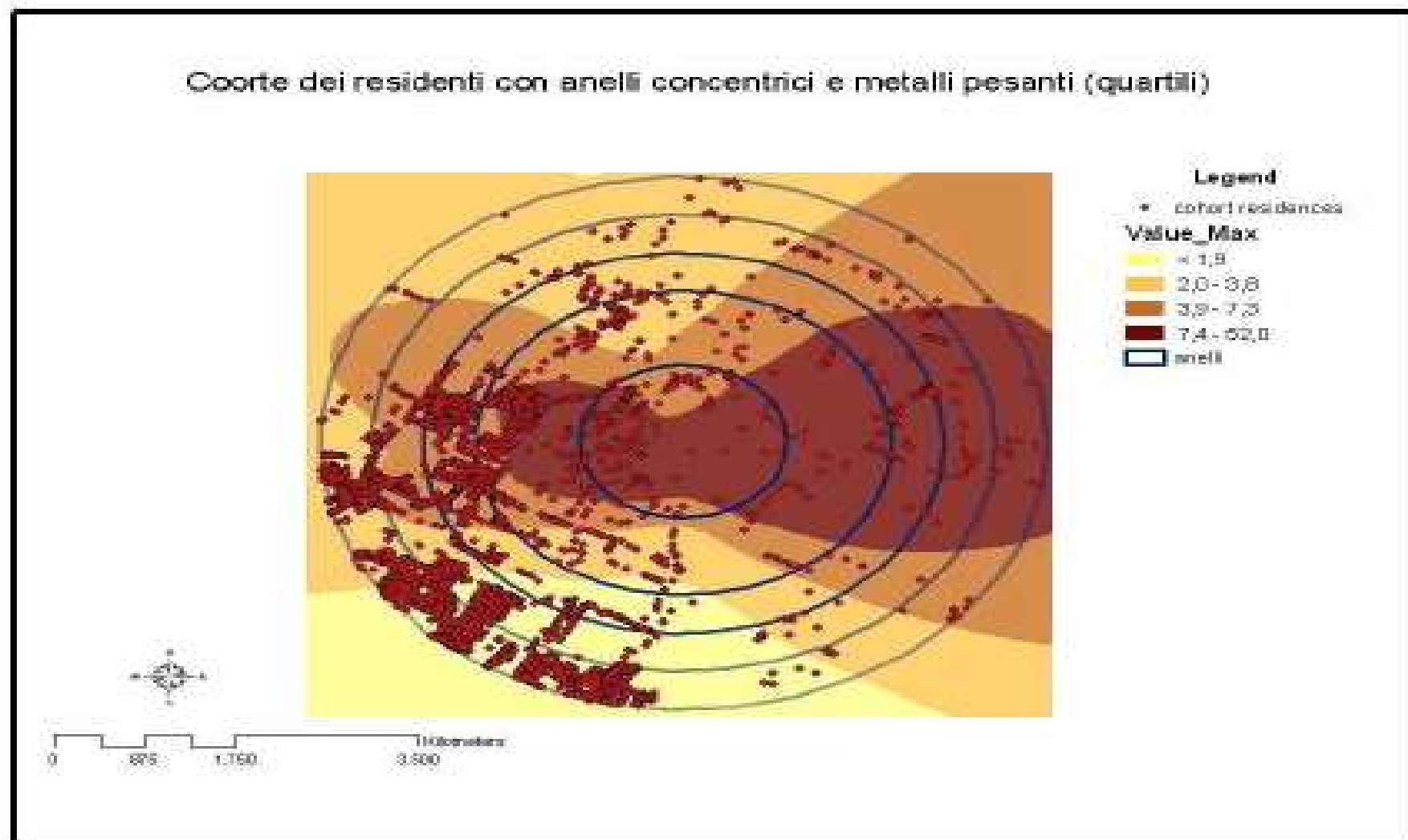


Figura 5 - Coorte dei residenti e suddivisioni in 5 anelli concentrici e in base al tracciante ambientale degli inceneritori.



Business Bias:

How Epidemiologic Studies May Underestimate or Fail to Detect Increased Risks of Cancer and Other Diseases

VALERIO GENNARO, MD, LORENZO TOMATIS, MD

In spite of claiming primary prevention as their aim, studies of potential occupational and environmental health hazards that are funded either directly or indirectly by industry are likely to have negative results. The authors present three common scenarios in which faulty design of epidemiologic studies skews results, and list 15 study design flaws that lead to results that are dangerously misleading with regard to both the evaluation and the improvement of public health. *Key words:* epidemiology; industry influence; study design; public health.

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Interests other than those concerned with the protection of public health—in particular, personal ambition or economic profit—can heavily affect

workers (vs unexposed). This may, of course, occur because there is no exposure at all, but in other instances the real cause of the negative results—that is, the absence of an association between exposure and adverse health effects—may reside in the epidemiologic study design.

We present three scenarios, examples of which have been observed in recent studies, in which real risks of disease are underestimated. In addition, we put forth 15 points, some of which are borrowed from a nearly 25-year-old analysis,^{1,2} that are both critical and dangerously misleading with regard to both the evaluation and the improvement of public health. As reanalyses of specific data sets are not available, we cannot, however, make any direct evaluation or simulation of specific studies.

...which was a list of 15 points
oriented to show the reason why
we cannot take for granted
that the studied population is in good health
even if the scientific documentation
has given some indications about it

Epidemiology is **ALSO**

the discipline that studies
the diffusion of diseases (or health)
and the causes of diseases (or health)
in human populations
in order to achieve
a better knowledge

oriented to make **primary prevention** (stay healthy)
both in a **timely** and **effective** way

10 epidemiological tools

(components)

1. **Scientific literature**
2. **Scientific method**
3. **Study design**
4. **Illnesses/symptoms (Yes/./No)**
5. **Exposure (Yes/.../No)**
6. **Confounding factors**
7. **Reference and control populations**
8. **Statistical analysis**
9. **Independence**
10. **Ethics**

In epidemiology mistakes can cause:

for short term

a) False alarms: overestimate the entity of true risks

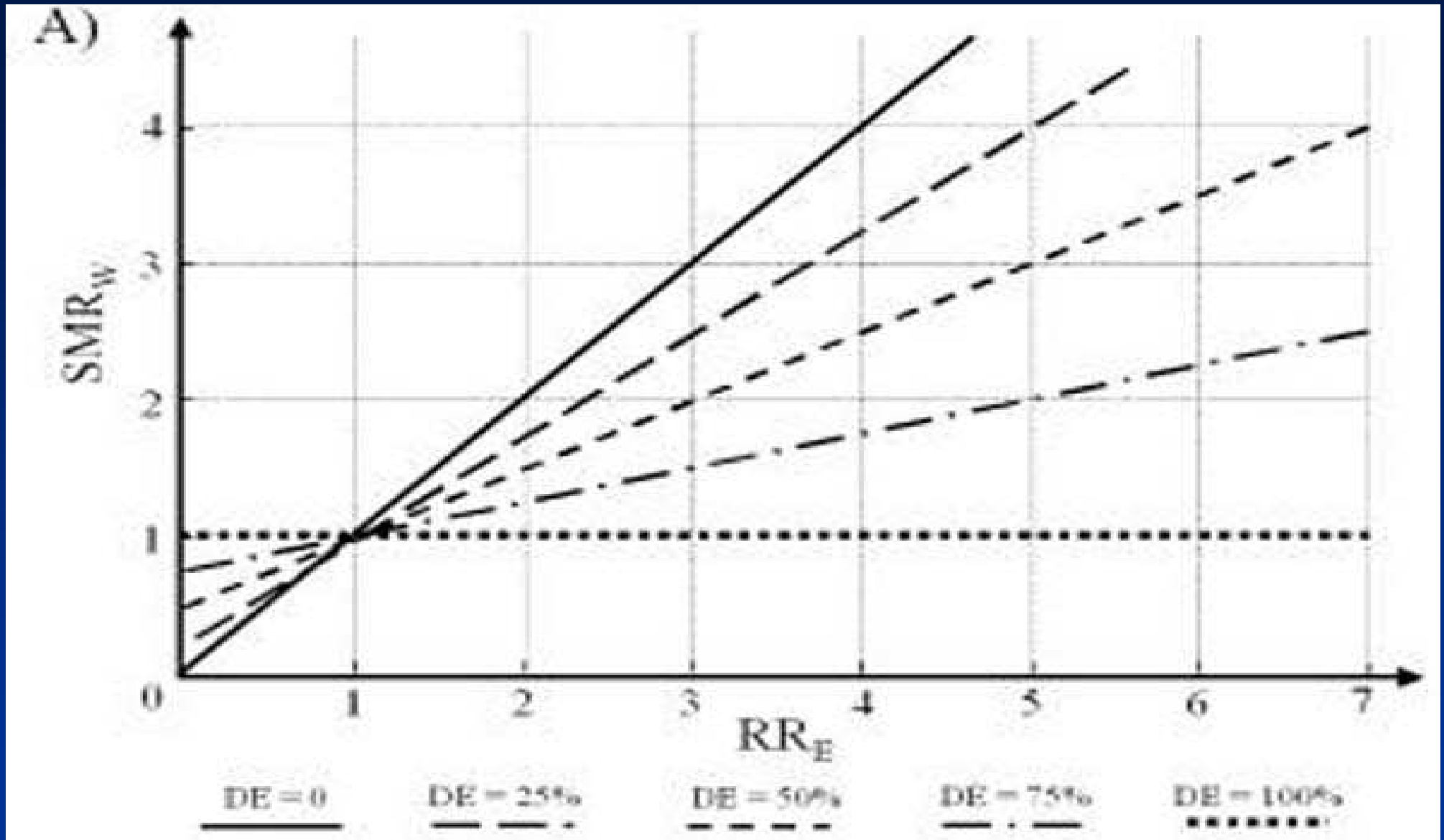
Negative consequences: (possible) stress, economic problems,...

b) False reassurances: underestimate true risks

Negative consequences: (likely) damages to public health, economy, society, credibility of institutions,..

for a long term

COMPARISON BIAS= 0% and DILUTION EFFECT= 0 → 100%



SMR_w = Estimated Risk

RR_E = True risk

From a Public Health viewpoint

an epidemiological mistake is more dangerous
when it underestimates the real risk
(vs. a risk overestimation)

We claim that the population is healthy, even when it isn't!
For this reason it is necessary to avoid
the underestimation of the real risk.

Why is the study NOT conducted?

the absence of data (exposures and health effects) is interpreted as absence of any risk;

the request is ignored, discouraged, postponed, sidetracked, minimized, ridiculed, criminalized,...;

Why will the study be conducted?

(also if the health risks are already well known)

To maintain the *status quo* and to postpone the change

Which population are we supposed to study?

Exposed and Unexposed pop. are combined (dilution effect);

more frail (or more exposed) populations are not analysed in detail;

are not comparable the Reference and the study population: too different (workers, general population: Healthy Effect) or too similar (in terms of exposures to same target organs);

Which exposures are we supposed to study?

only a single risk factor (dioxin, VC, benzene, PM10,..) or single sources of exposure is considered (rather than ALL harmful agents);

negative health effects and dangerous interactions among risk factors may happen even in accordance with law limits;

the exposure and the health effects are not linked (so when we have exposure data, effects data are not available and *viceversa*);

Which illnesses are we supposed to study?

instead of ALL diseases, only some rare pathologies (or tumours), are selected (the total number of attributable cases is ignored);

Which times and follow-ups should we study?

the length of follow-up is not coherent and proportionate
in comparison to the longer latency period of some diseases

Statistics is basic, however...

statistical significance instead of clinical or epidemiological significance, is often privileged
(but Bradford Hill suggested “Strength of the association” not necessarily “statistical significance”) within the causality criteria;

The results, finally! And now, what can we do with them?

only very high risks (RR greater than 2) are considered
(instead of the high number of the attributable cases);

the precautionary principle is rarely considered and applied.

In other words,
a real help will NOT be received
by the health professionals
in the lack of...

Scientific method

Ethics

Independence

and

Public Health oriented interests

PROPOSAL

FIRST: to use resources at its very best (priority,..)

SECOND: 30% reduction

of world annual military expenditure

(780 billions of US dollars, in 2001) - **UNESCO 2001**

Concluding:

Health professionals **MUST** help
to protect Environment and Health

- 1) considering with suspicion "negative" studies results
- 2) Controlling with scientific rigour and independence
Methods, Results and Conclusions of these "negative" studies
- 3) In absence of such systematic and timely controls,
these negative studies **CAN NOT** to confirm
the absence of health risks

References

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Thank you!
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