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of Medical Women's International Association

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Theme: Women • Health • Empowerment

Abstract No. 0029

CURRENT STATUS ON CHILDHOOD THYROID CANCER

AFTER FUKUSHIMA NPP DISASTER

- REPORT FROM ONE CLINICIAN'S POINT OF VIEW

Motomi Ushiyama, MD

General Manager, Internal Division

Sagami Seikyo Hospital

Clinical Professor,

Faculty of Medicine, Shimane University

Masami Aoki, MD

Clinician, Aoki Clinic

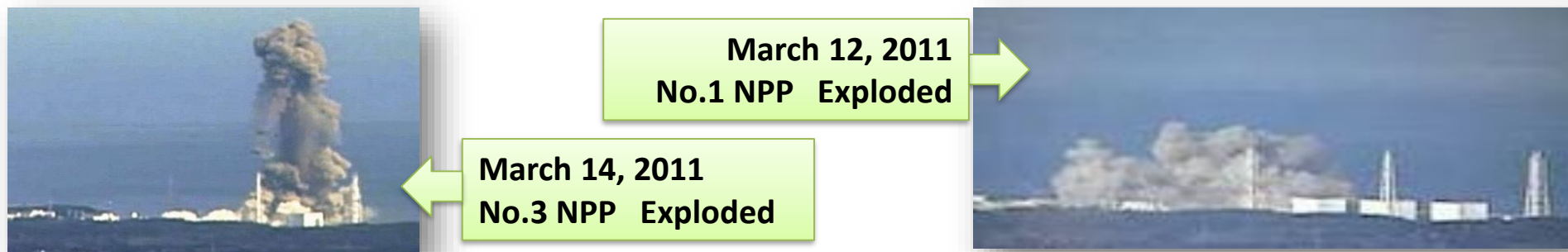
Yoshiko Maeda, MD

President,

Japan Medical Women's Association

① On March 11, 2011

TEPCO (Tokyo Electric Power Company) Fukushima Daiichi Nuclear Power Plant (NPP) shut down due to East Japan Earthquake & subsequent Tsunami; causing nuclear core melt-down, explosion, and enormous amount of radio active substance proliferation



TEPCO Fukushima Daiichi NPP

BEFORE

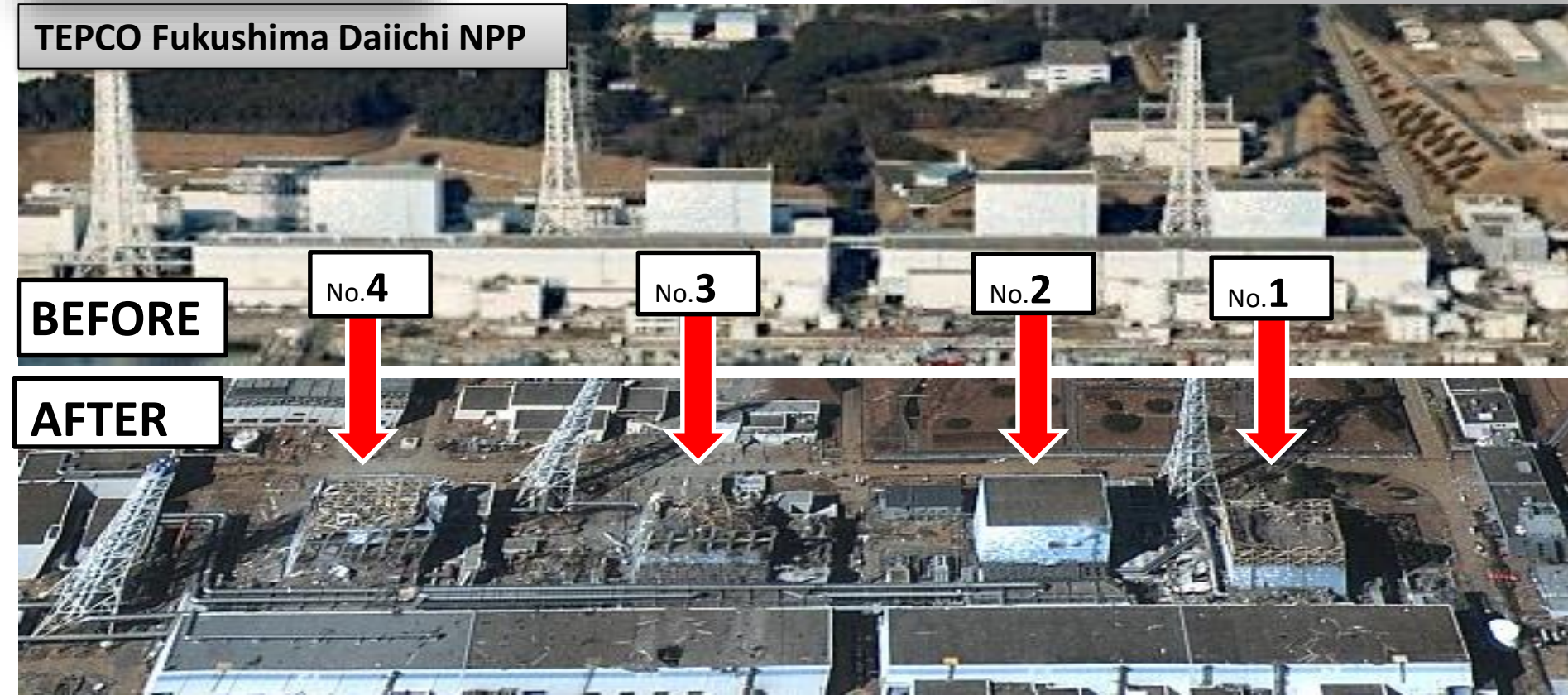
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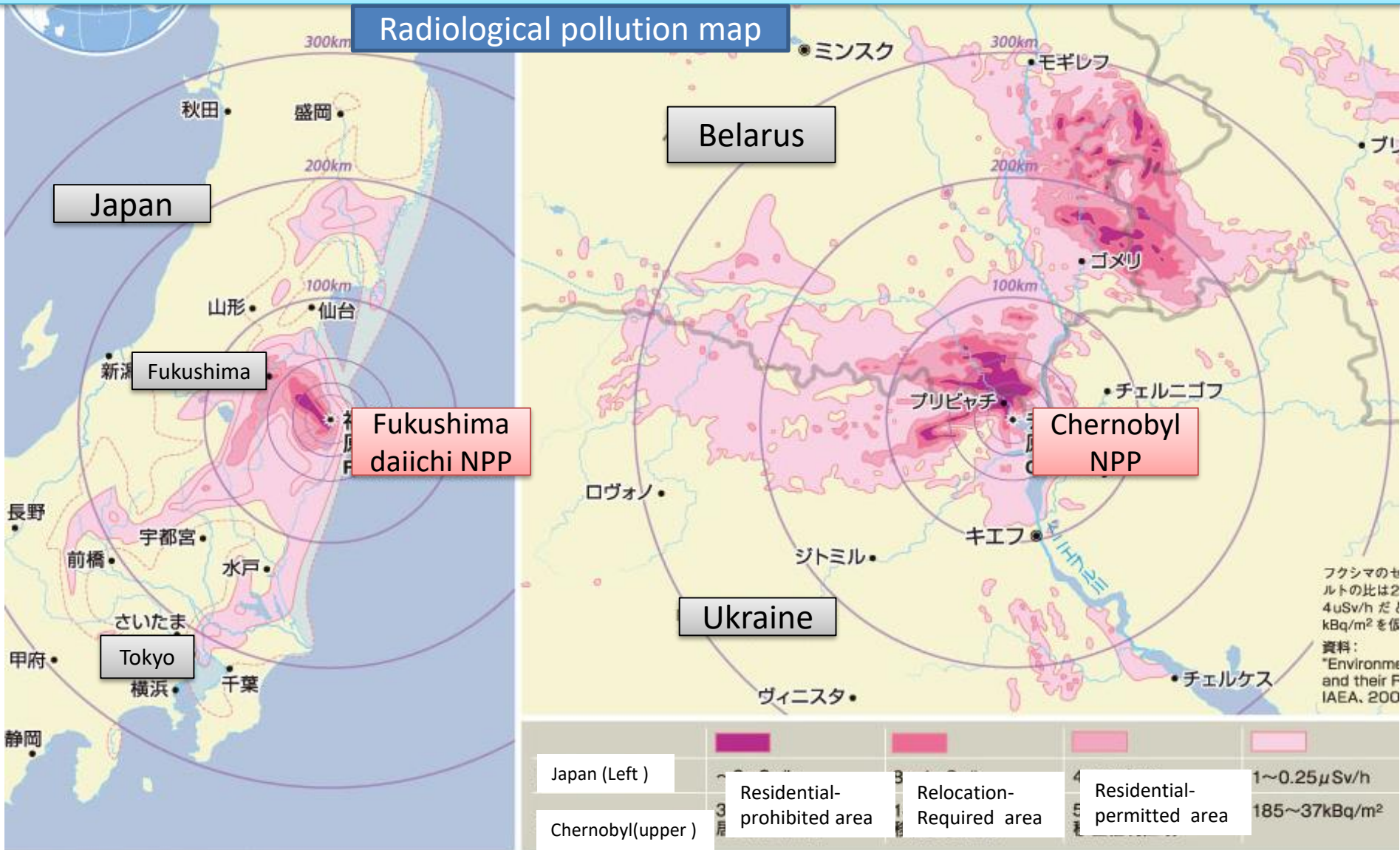
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AFTER



② Comparison between Fukushima & Chernobyl



Although it was different in size from the Chernobyl accident, the degree of the pollution was almost the same as that of Chernobyl.

③

Damage from Fukushima Daiichi NPP Accident

UNSCEAR 2008 REPORT:
VOLUME II

Fukushima	Chernobyl
2011~2015	1986~2005
40k	530k
13 Max 679	117 Max over1000
0	28

A. Workers at NPP

At TEPCO Fukushima Daiichi NPP, 2 workers were killed by Tsunami on the day of the quake. Thereafter, 4 workers were reported to die by duty, **but NO outbreak or deaths after office hours or resignation have been recorded.**

USS Ronald Reagan Crew

4,843

B. US Soldiers

Former crew members of USS Ronald Reagan sailed off Fukushima immediately after the accident for Operation Tomodachi sued the US District Court stating **"they were exposed as TEPCO did not disclose the correct information"**.

Died of cancer or leukemia

6

Malignant Neoplasms (cancer)

46

Thyroid Disease

35

Respiratory System Disease

931

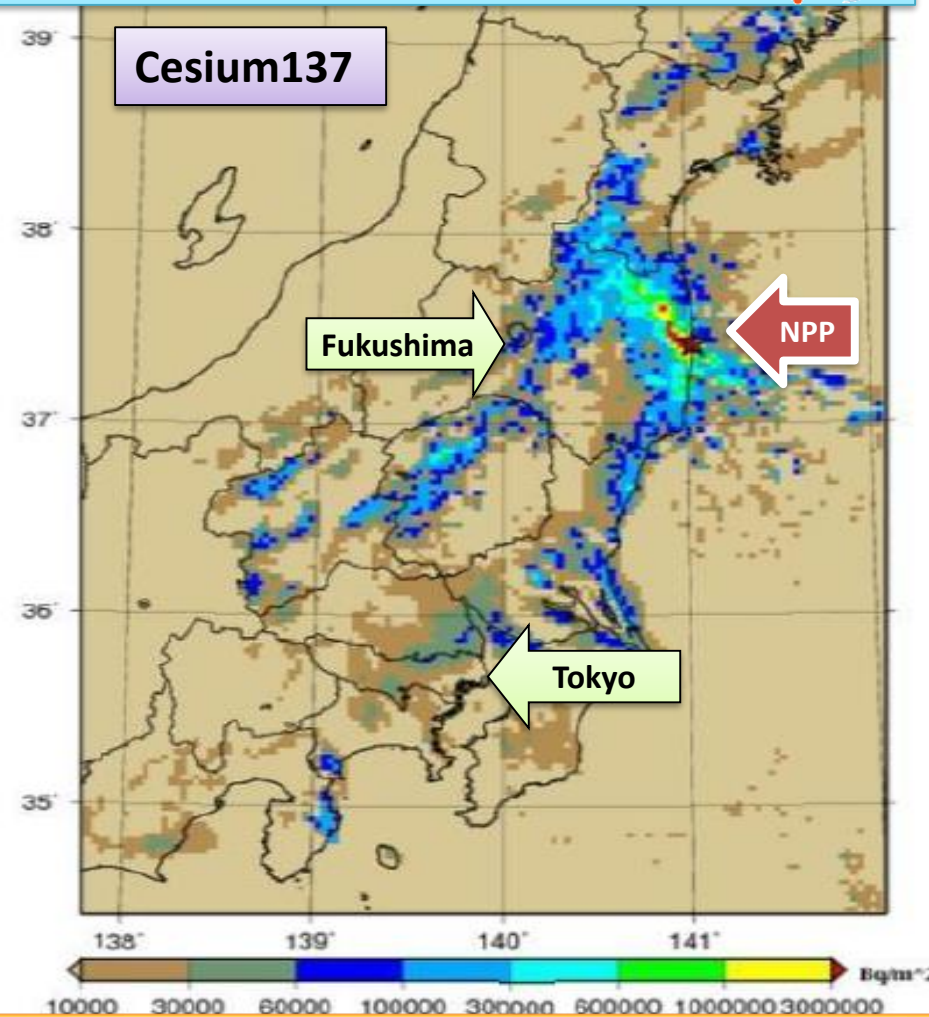
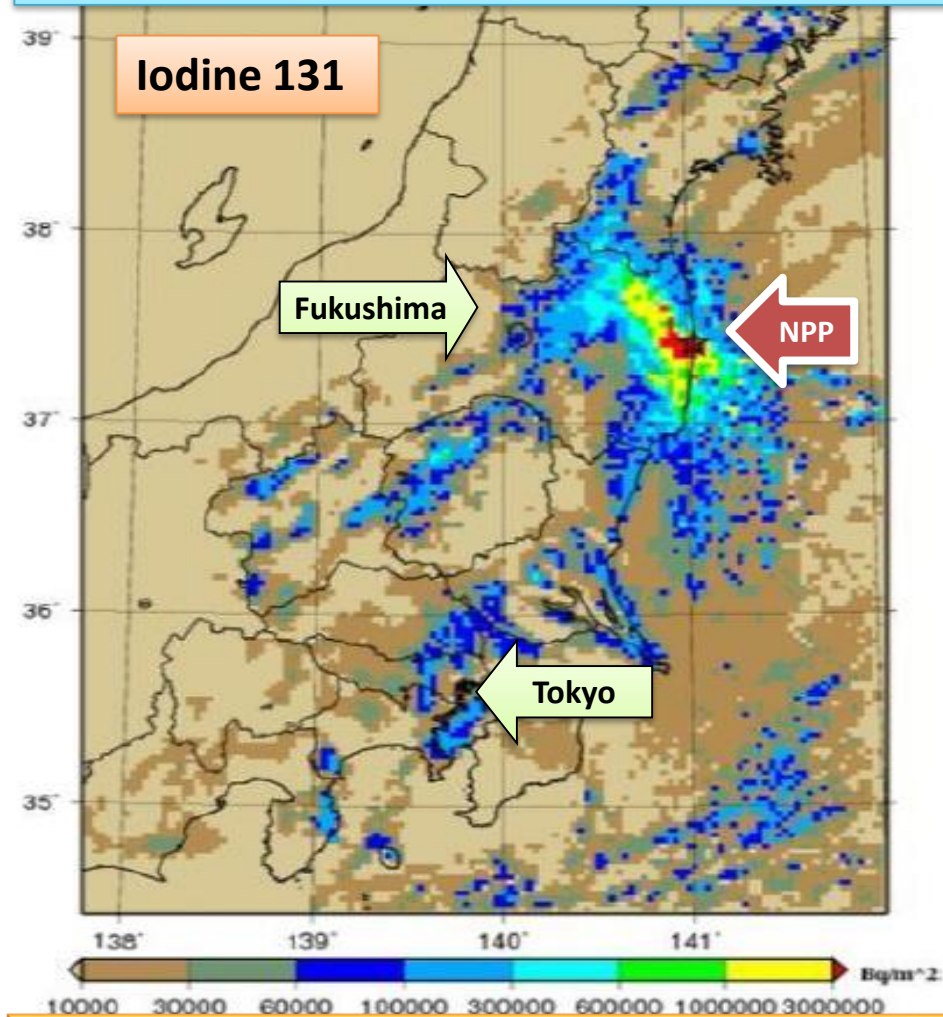
C. Birds and Insects



◆ The biological impacts of ingested radioactive materials on **the pale grass blue butterfly** *Chiyo Nohara, et al., Scientific Reports 4, 4946 (2014)*

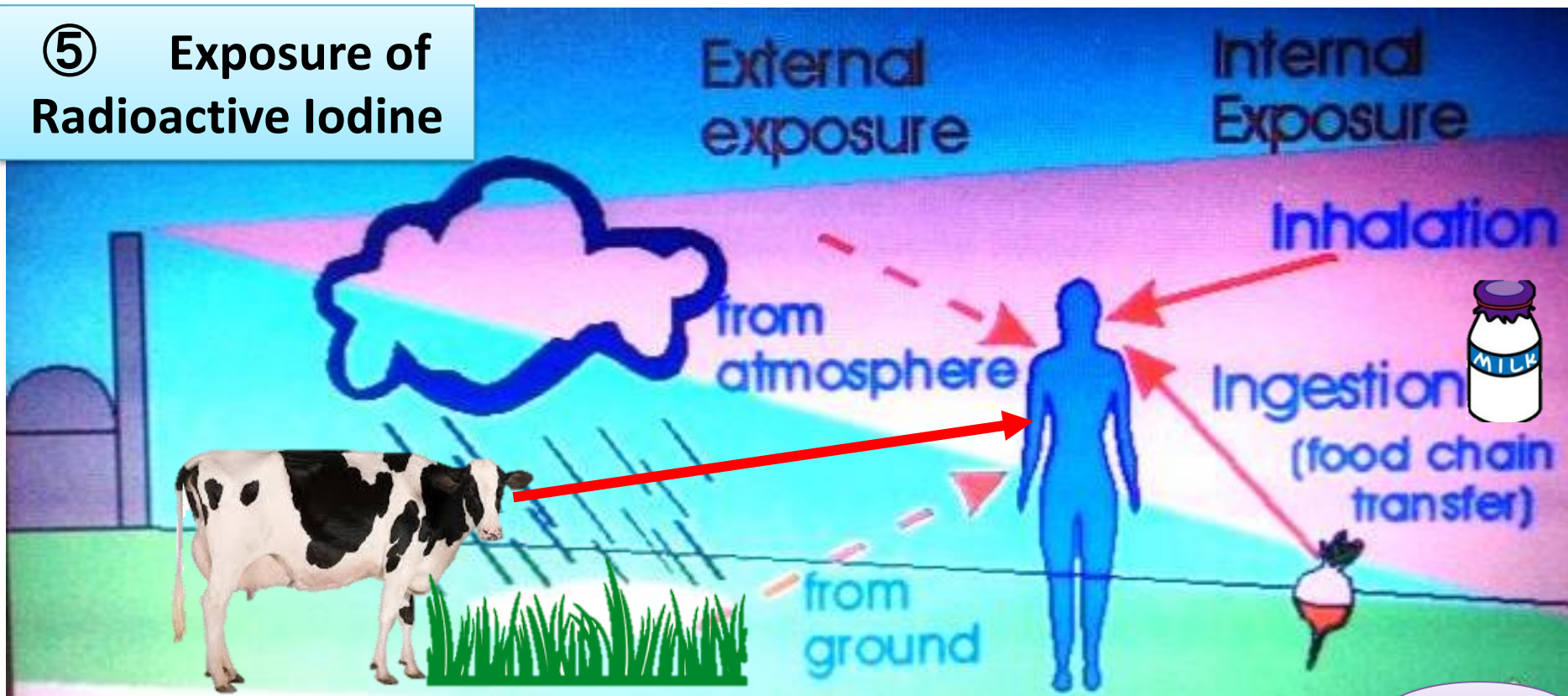
◆ Abundance and genetic damage of **barn swallows** from Fukushima
A. Bonisoli, T.A. Mousseau et al., Scientific Reports 5, 9432 (2015)

④ “Re-estimation of atmospheric release of radioactive material per SPEEDI-World Version” - as of April 1, 2011 G.Katata et.al (Japan Atomic Energy Agency) *18th Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA 94th AMS Annual Meeting, 3 Feb.2014.Atlanta,USA)*
(* SPEEDI : System for Prediction of Environmental Emergency Dose Information)



★SPEEDI's estimation tells us the similar outcome outside the prefecture.
Investigation outside the prefecture is essential!

⑤ Exposure of Radioactive Iodine



Increased thyroid cancer rates are suspected to be caused by exposure through the respiratory system and food ingestion. = Internal Exposure

60%

Chernobyl is a region of shortage of iodine, Japan is not short of iodine. However, if seaweed is not ingested for a week or two, it may cause iodine level decline.

★ No accurate measurement could be done for initial exposure.

⑥ Fukushima Health Management Survey

Childhood thyroid cancer due to internal exposure of radioactive iodine is the health hazard being revealed after Chernobyl NPP accident. Based on TEPCO Fukushima Daiichi NPP accident, Fukushima Prefecture is conducting thyroid examination for people aged 18 years or younger at the time of the disaster .

Thyroid Ultrasound Examination Definition of Diagnostic Criteria

★ Why is the survey only limited to Fukushima?

A	A1	No cysts/nodules
	A2	Nodules $\leq 5.0\text{mm}$ or cysts $\leq 20.0\text{mm}$
Those with A1 and A2 test results are recommended to undergo their next regular screening		
B	Nodules $\geq 5.1\text{mm}$ or cysts $\geq 20.1\text{mm}$	
C	immediate need for confirmatory examination	
Participants with B and C test results are advised to take the confirmatory examination.		



⑦ Flow of Thyroid Ultrasound Examination

Primary Examination

Even if it is diagnosed as cancer by individual (independent) examination, such case is not entirely recorded

A1,A2

Thyroid
Ultrasound
Check in
2-5 years
later

B,C

Secondary Examination
(Ultrasound/Blood test)

Aspiration Biopsy
Cytology(FNAC)

Follow Up

No Medical
Consultation

Patients being on follow-up then
missing; approx. **2,500** people

Suspicious or Malignant

Follow Up

Suspicious in
malignancy

Operation

Waiting for Operation

Operation

This is the only case that The Fukushima
Health Survey officially announces

Even when the diagnosis following
surgery is of thyroid cancer, they are not
measured officially.

★An accurate diagnosis for thyroid cancer, a number of treatment cannot be grasped with the current system. No one can tell the truth; **is this right thing?**

⑧

The Results of Thyroid Ultrasound Examination

The Fukushima Health Survey officially announces

As of March 31, 2017	1st Round	2nd Round	3rd Round	
Name of Exam	Preceding Exam	Full exam 1st Time	Full exam 2nd Time	
Implementation year	FY2011, 2012, 2013	FY2014, 2015	FY2016, 2017	
Target	367,672	381,282	336,616	
Examinee	300,476	270,511	120,596	
Exam Rate(%)	81.7	71.0	35.8	
B,C Judgment	2,294	2,226	691	
Suspicious or Malignant	116	71	4	total 191
Tumor size(mm)	13.9±7.8	11.1±5.6	13.4±3.6	
Operated	102	49	2	
Confirmed Thyroid Cancer	101	49	2	total 152
Suspicious or Malignant	116	71	4	Chernobyl
Gender Ratio (M:F)	1:2	1:1.2	1:1	1:1.6
Age at diagnosis	17.3±2.7	16.9±3.2	15.5±2.1	
Age at disaster	14.9±2.6	12.6±3.2	10.3±2.1	
	6~18	5~18	8~13	
★In Chernobyl case, those who were infant at the time of accident have higher rate for thyroid cancer in later years, while cancer was found with only those who were over 5 years old in Fukushima case (actually there was a case that 4 years old child had a cancer thus fact is yet unknown).				
Malignancy confirmed at 2nd round		71		
Result in 1st Round of 71		A1: 33, A2: 32 B: 5, Not Examined : 1		

65 people who were once judged as A (no abnormality) diagnosed as cancer at medical inspection held 2 years later.

⑨

Operation cases of Fukushima Thyroid Ultrasound Examination

Report by Fukushima Prefectural Medical University

dated May 28, 2017

125 cases of Thyroid Cancer

M 44 : F 81, Age at disaster $14.8 \pm 2.7(5-18)$

114 cases of lobectomy resection (91.2%)

11 cases of total extirpation (8.8%)

Papillary thyroid carcinoma 121、Poorly differentiated thyroid carcinoma 3、Others 1

Tumor size

$\geq 10\text{mm}$
51 cases
(40.8%)

$< 10\text{mm}$
74 cases
(59.2%)

Lymph node
metastasis
97 cases(77.6%)

Extrathyroidal
invasion
49 cases(40%)

Distant(lung
) metastasis
2 cases (3%)

No lymph node・extrathyroidal invasion・
distant metastasis = 5 cases(4%)

Those 120 cases (96%) excluding the 5 cases are the cases
to be operated now according to the guidelines

“Thus it’s not
over diagnosis or
over treatment”

Number of recurrence、reoperation, RI-Tx
is not made to public

★ Too many cases being judged as “surgery needed”

⑩ **Studies of the Mortality of Atomic Bomb Survivors,**
Report 14, 1950–2003: An Overview of Cancer and Noncancer Diseases

Radiat Res 2012 (March); 177(3):229–43

If you are exposed even only to
a small amount of radiation,
the risk of developing cancer increases.
Absolute safety is ZERO dose, which is,
NOT TO BE EXPOSED!

This is the report released by **Radiation Effects Research Institute** in 2012, which is an organization closely tracking **the atomic bomb survivors in Hiroshima and Nagasaki** for over 60 years.

★ Fukushima health survey itself will most likely be shrunk. It's not being reported, rather, it's being forgotten. Investigation needs to carry on as clarification on radioactive exposure requires much time.

We need to get more attention!

3・11

**Benefit Support System
by the organization**

Fund for Children with Thyroid Cancer



Something we want you to know about children.

Children's thyroid cancer is increasing around the Fukushima Prefecture. Parents and children are isolated from society and face serious struggles. Repeated medical exams and increased hospital expenses cause marital disharmony and interruptions to schooling.

Many have lobbied for financial support for medical expenses incurred. In April 2017, the **Tokyo Branch of the Japan Medical Women's Association** made recommendations to include phone and face-to-face consultations.

We want all of you around the world pay an extra attention to Japan and Fukushima; we invite your comments and opinions!

Should you have any questions or need further information, please feel free to contact to:

Motomi Ushiyama
email: moumou44@gmail.com

Also, please feel free to share this information with whom you think of appropriate.

Thank you!