

Supplementary Materials: Towards a Long-Term Strategy for Voluntary-Based Internal Radiation Contamination Monitoring: Representativeness of the Monitoring Results in Fukushima, Japan

Table S1. Regression models adopted to project the probability of Cs detection in whole population (odds ratio and 95% CI) for Cs-137 (the upper) and Cs-134 (the lower).

| Time Period | Cs-137 | | | | | |
|--|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|
| | Oct 2011 | Nov 2011 | Dec 2011 | Jan 2012 | Feb 2012 | Mar 2012 to Apr 2012 |
| Age group | | | | | | |
| 21–30 | 0.66 (0.39–1.13) | 0.55 (0.34–0.89)* | 0.54 (0.33–0.90)* | 0.53 (0.27–1.05) | 0.39 (0.20–0.76)** | 0.33 (0.14–0.75)** |
| 31–40 | 0.80 (0.50–1.27) | 0.58 (0.40–0.85)** | 0.53 (0.36–0.78)** | 0.81 (0.46–1.41) | 0.47 (0.25–0.85)* | 0.30 (0.16–0.56)*** |
| 41–50 | 0.72 (0.45–1.15) | 0.68 (0.46–0.98)* | 0.62 (0.42–0.91)* | 0.71 (0.40–1.26) | 0.49 (0.27–0.88)* | 0.84 (0.48–1.48) |
| 51–60 | 0.94 (0.61–1.43) | 1.01 (0.69–1.48) | 0.76 (0.51–1.11) | 0.83 (0.48–1.46) | 0.69 (0.40–1.17) | 0.85 (0.50–1.43) |
| 61–70 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 71–80 | 1.25 (0.77–2.05) | 1.11 (0.71–1.73) | 1.21 (0.77–1.91) | 2.45 (1.28–4.70)** | 0.61 (0.28–1.29) | 1.40 (0.79–2.47) |
| 81– | 1.12 (0.55–2.29) | 1.60 (0.75–3.41) | 1.58 (0.72–3.47) | 1.48 (0.50–4.40) | 0.20 (0.02–1.77) | 0.60 (0.16–2.28) |
| Gender | | | | | | |
| Men | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Women | 0.14 (0.11–0.19)*** | 0.18 (0.14–0.23)*** | 0.18 (0.14–0.23)*** | 0.11 (0.07–0.16)*** | 0.12 (0.08–0.17)*** | 0.17 (0.11–0.25)*** |
| Post-incident actual lived-at address | | | | | | |
| Inside Minamisoma City | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Outside Minamisoma City but inside Fukushima Prefecture | 0.97 (0.69–1.36) | 0.96 (0.69–1.32) | 1.28 (0.86–1.90) | 0.58 (0.33–1.01) | 0.89 (0.58–1.38) | 1.51 (0.91–2.52) |
| Neighboring prefectures of Fukushima | 0.51 (0.31–0.83)** | 0.73 (0.47–1.13) | 0.34 (0.19–0.62)*** | 0.61 (0.34–1.11) | 0.57 (0.32–1.03) | 0.65 (0.35–1.22) |
| Outside the neighboring prefectures | 0.71 (0.26–1.92) | 0.28 (0.09–0.83)* | 0.54 (0.16–1.79) | 0.41 (0.16–1.05) | 0.19 (0.06–0.56)** | 0.36 (0.12–1.10) |
| Air dose rate ($\mu\text{Sv/h}$) as of 29 April 2011 at pre-incident residential address | 1.05 (0.97–1.13) | 1.30 (1.23–1.37)*** | 1.15 (1.00–1.32) | 1.24 (1.10–1.38)*** | 1.15 (1.07–1.24)*** | 1.16 (1.04–1.28)** |
| Time Period | May 2012 | Jun 2012 | Jul 2012 to Aug 2012 | Sep 2012 to Mar 2013 | Apr 2013 to Mar 2015 | |
| Age group | | | | | | |
| 21–30 | 0.20 (0.06–0.71)* | 0.29 (0.07–1.29) | 0.06 (0.01–0.41)** | 0.53 (0.24–1.16) | 0.27 (0.08–0.87)* | |
| 31–40 | 0.32 (0.17–0.62)** | 0.70 (0.31–1.58) | 0.47 (0.25–0.88)* | 0.33 (0.16–0.68)** | 0.23 (0.09–0.57)** | |
| 41–50 | 0.44 (0.22–0.89)* | 0.78 (0.35–1.74) | 0.58 (0.32–1.03) | 0.24 (0.11–0.54)** | 0.33 (0.16–0.69)** | |
| 51–60 | 0.61 (0.35–1.06) | 0.74 (0.38–1.43) | 0.90 (0.58–1.40) | 0.56 (0.34–0.91)* | 0.41 (0.24–0.71)** | |
| 61–70 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| 71–80 | 0.94 (0.57–1.55) | 1.52 (0.87–2.65) | 1.30 (0.84–2.01) | 1.50 (0.97–2.30) | 1.54 (1.07–2.20)* | |
| 81– | 0.34 (0.10–1.22) | 3.80 (1.60–9.01)** | 1.64 (0.86–3.13) | 2.91 (1.62–5.20)*** | 0.95 (0.49–1.83) | |
| Gender | | | | | | |
| Men | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Women | 0.13 (0.09–0.20)*** | 0.08 (0.05–0.14)*** | 0.12 (0.08–0.18)*** | 0.22 (0.15–0.31)*** | 0.32 (0.23–0.45)*** | |
| Post-incident actual lived-at address | | | | | | |
| Inside Minamisoma City | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Outside Minamisoma City but inside Fukushima Prefecture | 0.23 (0.05–1.00) | 0.69 (0.26–1.84) | 0.63 (0.29–1.35) | 0.79 (0.42–1.47) | 0.78 (0.39–1.57) | |

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|---|---------------------|---------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Neighboring prefectures of Fukushima | 0.57 (0.21–1.54) | 0.56 (0.16–1.94) | 0.88 (0.37–2.12) | 0.20 (0.05–0.81)* | 0.11 (0.02–0.82)* | |
| Outside the neighboring prefectures | 0.21 (0.03–1.64) | 1.05 (0.22–5.06) | 0.27 (0.04–2.03) | 0.37 (0.09–1.53) | NA | |
| Air dose rate (μSv/h) as of 29 April 2011 at pre-incident residential address | 1.19 (0.90–1.57) | 1.13 (0.93–1.36) | 1.14 (1.01–1.28)* | 1.14 (1.04–1.26)** | 1.23 (1.16–1.31)*** | |
| Cs-134 | | | | | | |
| Time period | Oct 2011 | Nov 2011 | Dec 2011 | Jan 2012 | Feb 2012 | Mar 2012 to Apr 2012 |
| Age group | | | | | | |
| 21–30 | 0.67 (0.38–1.17) | 0.49 (0.30–0.80)** | 0.53 (0.33–0.87)* | 0.38 (0.18–0.81)* | 0.31 (0.15–0.67)** | 0.22 (0.08–0.59)** |
| 31–40 | 0.80 (0.50–1.29) | 0.42 (0.28–0.62)*** | 0.57 (0.39–0.83)** | 0.62 (0.34–1.12) | 0.43 (0.22–0.84)* | 0.28 (0.14–0.56)*** |
| 41–50 | 0.56 (0.35–0.89)* | 0.59 (0.40–0.86)** | 0.60 (0.41–0.87)** | 0.65 (0.36–1.19) | 0.33 (0.16–0.66)** | 0.39 (0.20–0.79)** |
| 51–60 | 1.06 (0.69–1.63) | 0.90 (0.61–1.33) | 0.77 (0.53–1.12) | 0.94 (0.53–1.68) | 0.57 (0.31–1.05) | 0.61 (0.35–1.09) |
| 61–70 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 71–80 | 1.26 (0.77–2.06) | 0.89 (0.57–1.41) | 1.52 (0.97–2.37) | 2.03 (1.04–3.98)* | 0.48 (0.20–1.17) | 1.12 (0.61–2.03) |
| 81– | 1.12 (0.55–2.28) | 1.23 (0.57–2.67) | 1.05 (0.48–2.32) | 1.60 (0.53–4.77) | 0.31 (0.03–3.19) | 0.43 (0.09–2.01) |
| Gender | | | | | | |
| Men | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Women | 0.12 (0.09–0.17)*** | 0.17 (0.13–0.22)*** | 0.19 (0.15–0.25)*** | 0.11 (0.07–0.16)*** | 0.09 (0.05–0.15)*** | 0.14 (0.09–0.23)*** |
| Post-incident actual lived-at address | | | | | | |
| Inside Minamisoma City | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Outside Minamisoma City but inside Fukushima Prefecture | 1.09 (0.76–1.56) | 1.11 (0.80–1.54) | 0.74 (0.50–1.11) | 0.61 (0.34–1.11) | 1.09 (0.66–1.78) | 1.74 (0.99–3.06) |
| Neighboring prefectures of Fukushima | 0.59 (0.36–0.99)* | 0.58 (0.36–0.94)* | 0.26 (0.15–0.48)*** | 0.45 (0.23–0.90)* | 0.72 (0.37–1.43) | 0.44 (0.19–1.01) |
| Outside the neighboring prefectures | 0.33 (0.12–0.97)* | 0.34 (0.11–1.03) | 0.56 (0.19–1.62) | 0.29 (0.10–0.90)* | 0.13 (0.03–0.58)** | 0.26 (0.06–1.16) |
| Air dose rate (μSv/h) as of 29 April 2011 at pre-incident residential address | 1.11 (1.00–1.22)* | 1.30 (1.20–1.41)*** | 1.01 (0.87–1.17) | 1.23 (1.09–1.39)** | 1.19 (1.07–1.32)** | 1.10 (0.98–1.23) |
| Time period | May 2012 | Jun 2012 | Jul 2012 to Aug 2012 | Sep 2012 to Mar 2013 | Apr 2013 to Mar 2015 | |
| Age group | | | | | | |
| 21–30 | 0.11 (0.01–0.85)* | 0.25 (0.03–1.94) | 0.44 (0.17–1.14) | 0.10 (0.01–0.77)* | 0.23 (0.03–1.66) | |
| 31–40 | 0.26 (0.11–0.61)** | 0.52 (0.17–1.58) | 0.10 (0.02–0.40)** | 0.36 (0.15–0.87)* | 0.23 (0.05–0.97)* | |
| 41–50 | 0.31 (0.12–0.78)* | 0.53 (0.18–1.61) | 0.63 (0.33–1.20) | 0.35 (0.14–0.85)* | 0.10 (0.01–0.74)* | |
| 51–60 | 0.49 (0.25–0.96)* | 0.95 (0.45–2.00) | 0.96 (0.59–1.58) | 0.59 (0.32–1.07) | 0.19 (0.06–0.62)** | |
| 61–70 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| 71–80 | 1.01 (0.57–1.79) | 1.40 (0.72–2.70) | 1.45 (0.90–2.34) | 1.62 (0.96–2.72) | 1.39 (0.80–2.41) | |
| 81– | NA | 2.52 (0.90–7.06) | 1.50 (0.72–3.12) | 2.02 (0.95–4.29) | 0.77 (0.27–2.25) | |
| Gender | | | | | | |
| Men | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Women | 0.16 (0.09–0.27)*** | 0.09 (0.04–0.18)*** | 0.25 (0.17–0.37)*** | 0.49 (0.32–0.73)** | 0.31 (0.18–0.54)*** | |
| Post-incident actual lived-at address | | | | | | |
| Inside Minamisoma City | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Outside Minamisoma City but inside Fukushima Prefecture | 0.55 (0.12–2.49) | 0.44 (0.10–1.89) | 0.58 (0.23–1.46) | 0.95 (0.44–2.02) | NA | |
| Neighboring prefectures of Fukushima | 0.20 (0.03–1.48) | 0.32 (0.04–2.45) | 1.06 (0.42–2.69) | 0.82 (0.29–2.33) | NA | |
| Outside the neighboring prefectures | 0.42 (0.05–3.31) | 0.93 (0.11–7.51) | 0.79 (0.19–3.37) | 1.06 (0.32–3.52) | NA | |
| Air dose rate (μSv/h) as of 29 April 2011 at pre-incident residential address | 1.11 (0.81–1.52) | 1.05 (0.83–1.34) | 1.16 (1.04–1.29)** | 1.21 (1.09–1.34)*** | 1.23 (1.12–1.36)*** | |

Note: * p<0.05, **<0.01, ***<0.001. Variables in the tables were mutually adjusted. Pre-incident residential address was also adjusted as a random effect. NA indicates no detected individuals.