福島県立医科大学学術成果リポジトリ
FUKUSHIMA MEDICAL UNIVERSITY

第２回放射線医学県民健康管理センター国際シンポジウム　報告書

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The 2nd International Symposium of the Radiation Medical Science Center for the Fukushima Health Management Survey

Build Back Better, Together.

Fukushima Health Management Survey updated, focusing on thyroid and mental health

3FQPSU

February 2(SUN) - 3(MON), 2020

VENUE The Celecton Fukushima 3F "Adatara"

Organizer	Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University
Nominal Support	Fukushima Prefecture, Hiroshima University, Nagasaki University, Fukushima University, The University of Aizu

FUKUSHIMA MEDICAL UNIVERSITY

€7KH FRQWHQW RI WKLV UHSRUW LV FXUUHQW DV RI WKH W
€ 7HUPV ZLWK WKLV V\PERO DUH H[SODLQHG RQ 3

2Q WKH 2FFDVLRQ RI 3X
RI RXU ,QWHUQDWLRQDO 6\PSRVL

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IRU WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH\
)XNXVKLPD 0HGLFDO 8QLYHUVLW\

:H ZRXOG [WNHG WR H[FHUH WKDQNV IRU \RXU XQGHUVWDQGLQJ R
WKH 5DGLDWLRQ 0HGLFDO &HQWHU IRU WKH)XNXVKLPD +HDOWK
0HGLFDO 8QLYHUVLW\

,Q UHVSRQVH WR UDGLDWLRQ IURP UDGLRDFWLYH PDWHULDO
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)XNXVKLPD 3UHIHFWXUH

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RYHU D ORQJ WHUP DQG WR PDLQWDLQ DQG LPSURYH WKHLU KH
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GRVH UDWH ZDV KLJK DQG D VHW RI IRXU 'HWDLOHG 6XUYH\V 7
+HDOWK &KHFN 0HQWDO +HDOWK DQG /LIHVW\OH 6XUYH\ DQG 3U
WR LQGHSHQGHQW H[SHUWV FRPSULVLQJ WKH 3UHIHFWXUDO 2Y
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LQIRUPDWLRQ RQ WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH
DGYDQFH VFLHQWLILF ILQGLQJV RI WKH VXUYH\ WKURXJK GLVFXV
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)XNXVKLPD UHVLGHQWV

)ROORZLQJ WKH ILUVW V\PSRVLXP ODVW \HDU RXU VHFRQG R
DW WKH &HOHFWRQ +RWHO LQ)XNXVKLPD ZLWK %XLOG %DFN %
WKH V\PSRVLXP 'U 7$.(126+,7$ 6HLLFKL WKH 3UHVLGHQW RI)XN
HYHU\RQH RQ)08¶V EHKDOI DQG HQFRXUDJLQJ ZRUGV IURP)XNX
GHOLYHUHG E\ 9LFH *RYHUQRU ,'(7DNDWRVKL

$SSUR[LPDWHO\ SHRSOH LQ WRWDO SDUWLFLSDWHG RYHU
KHDOWK PHGLFDO SURIHVVLRQDOV IURP -DSDQ DQG DEURDG SU
WRSLFV)RUWKULJKW GLVFXVVLRQV DGGUHVVHG TXHVWLRQV IUR
RXU XOWLPDWH VXFFHVV ZLOO GHSHQG RQ UHDFKLQJ D EURDGH

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:H KXPEO\ UHTXHVW \RXU RQJRLQJ VXSSRUW WR PDNH WKLV
LPSURYLQJ WKH KHDOWK RI)XNXVKLPD¶V SHRSOH ZHOO LQWR W

2SHQLQJ 5HPDUNV

7KLV VWDWHPHQW LV FXUUHQW DV RI WKH WLPH RI WKH ,

7$.(126+,7$ 6HLLFKL 0' 3K'
3UHVLGHQW RI)XNXVKLPD 0HGLFD W\

7KDQN \RX IRU WKH NLQG LQWURGXFWLRQ , DP 7$.(126+,7$ 6HL
8QLYHUVLW\ 7RGD\ ZH DUH VR KDSS\ WR ZHOFRPH \RX WR)XN
/HW PH VD\ D IHZ ZRUGV WR ZHOFRPH HYHU\RQH WR WKLV QG
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,W LV D JUHDW SOHDVXUH WKDW ZH FDQ KROG WKLV V\PSRV
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SODFHV LQ -DSDQ DQG IURP FRXQWULHV IDU DZD\

,W ZLOO QRW EH ORQJ XQWLO WKH WK DQQLYHUVDU\ RI
QXFOHDU GLVDVWHU WKDW IROORZHG 'XULQJ WKLV WLPH HYE
SURJUHVV DQG JRRG QHZV DERXW UHVWRUDWLRQ RI EXVLQHV
EHHQ UHSRUWHG +RZHYHU PDQ\ LVVXHV UHPDLQ VXFK DV WK
FRQFHUQV DPRQJ RXU UHVLGHQWV 7KHVH VWDQG LQ WKH ZD\ F
7R DGGUHVV WKHVH SUREOHPV UHTXLUHV RXU IXOOHVW FRPPL

8QGHU VXFK FLUFXPVWDQFHV WKURXJK WKH)XNXVKLPD +H
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, KRSH WKDW WKLV V\PSRVLXP ZLOO JLYH DV PDQ\ SHRSOH
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,QYLWHG 5HPDUNV

8&+,%25DŸDR
*RYHUQRU RI)XNXVKLPD 3UHIHFWXUH
¤GHOLYHUHG E\ 9LFH *R¥HUQRU ,'(7DNDWRVKL

7KLV VWDWHPHQW LV FXUUHQW DV RI WKH WLPH RI WKH ,QWHUQDWLRQDO 6\PSRVLXP)HEUXDU\

,W LV P\ SOHDVXUH WKDW WKH 5DGLDWLRQ 0HGLFDO 6FLHQFH 6XUYH\ LV KROGLQJ LWV QG ,QWHUQDWLRQDO 6\PSRVLXP

$OVR , DSSUHFLDWH HYHU\RQH IURP -DSDQ DQG DEURDG I KHDUWIHOW ZHOFRPH /HW PH H[SUHVV P\ GHHSHVW UHVSHFW DJDLQ IRU \RXU VSHFLDO XQGHUVWDQGLQJ DQG VXSSRUW IRU

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1HDUO\ QLQH \HDUV KDYH SDVVHG VLQFH WKH QXFOHDU DFF $OWKRXJK FLWL]HQV¶ XQGHUVWDQGLQJ RI WKH KHDOWK HIIHF VWLOO UHPDLQV DQG , WKLQN LW LV YHU\ LPSRUWDQW WKDW

8QGHU VXFK FLUFXPVWDQFHV LW LV WUXO\ VLJQLILFDQW SUHVHQWDWLRQV DQG GLVFXVVLRQV LQ WKLV VHFRQG V\PSRVL ZLWKLQ WKH IUDPHZRUN RI WKH)XNXVKLPD +HDOWK 0DQDJHPH IXUWKHU SURJUHVV WRZDUG WKH UHFRYHU\ RI)XNXVKLPD

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$OVR LQ -XO\ WKLV \HDU WKH 7RN\R 2O\PSLFV UHJDUGHG EHJLQ)XNXVKLPD ZLOO KRVW 2O\PSLF EDVHEDOO DQG VRIWED PDQ\ SHRSOH LQ -DSDQ DQG RYHUVHDV RXU JUDWLWXGH IRU W RI)XNXVKLPD DORQJ ZLWK LWV QDWXUDO EHDXW\

, ZRXOG OLNH WR FRQFOXGH P\ UHPDUNV E\ ZLVKLQJ IRU W SDUWLFLSDQW¶V IXUWKHU ZHOOEHLQJ

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([HFXWLYH 'LUHFWRU 5DGLDWLRQ 0HGLFDO 6FLHQF
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.$0,<$ .HQML 0' 3K'

2Q WKLV RFFDVLRQ ZH KDYH FRPSLOHG D UHSRUW RI GLVFXVV
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/HW PH WDNH WKLV RSSRUWXQLW\ WR H[SUHVV VLQFHUH
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WK\URLG FDQFHU DPRQJ)X W
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3DUW&XUUHQW VWDWXV RI WK\URLG H[D
WK\URLG WUHDWPHQW WK\URLG

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HYDOXDWH WKH WK\URLG H[DPLQDWLRQ SURJUDP LQ)+06 IURP WKH SHUVSHF
DQG VR IRUWK

, 7HUPV ZLWK WKLV V\PERO DUH H[SODLQHG RQ 3

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GDWD IURP WKH 5HSRUW 7KH DQDO\VLV VKRZHG WKDW DIWHU
WKHUH ZDV QR SRVLWLYH GRVH HIIHFW UHODWLRQVKLS WR FR
GRVH 7KHUHIRUH WKH DERYH FRQFOXVLRQ ZDV GUDZQ ,W ZD
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WKH ³,QIRUPDWLRQ RQ 7K\URLG ([DPLQDWLRQ´ GLVWULEXWHG
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PRUH FDUHIXOO\ DQG DOVR LQWURGXFHG YDULRXV HIIRUWV W
RI VXSSRUW WHDPV VHW XS WR SURYLGH SV\FKRORJLFDO FDU
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³&DQFHU´ DQG ³PDOLJQDQF\´ DUH RPLQRXV ZRUGV EXW P
SURJQRVLV 5DUHO\ FDVHV VXFK DV XQGLIIHUHQWLDWHG FDQF
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$1*(/26 SUHVHQWHG WKDW WK\URLG FDQFHU LQWHUYHQWLRQV D
'U 0,<$8&+, $NLUD LQWURGXFHG SUDFWLFHV EXLOW DURXQG
VXUYHLOODQFH 7KHVH DQG RWKHU UHVXOWV RI WKH V\PSRVLX
DQG LQIRUPDWLRQ VKDULQJ ZLWK SHRSOH LQ -DSDQ DQG RYHU

,Q WKH DIWHUQRRQ RI WKH VHFRQG GD\ D VHVVLRQ RQ WKH

3HRSOH LQ)XNXVKLPD VXIIHUHG IURP DQ XQSUHFHGHQWHG
WKHLU OLYHV LQ KRPHWRZQV RU ZKHUHYHU WKH\ QRZ OLYH 7R
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:$/.(5 ZKR KDV ORQJ H[SHU
SV\FKRORJLVW LQ WKH 8QLWH VXUHV 7KH
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:H KRSH WKDW WKLV LQWHUQDWLRQDO V\PSRVLXP ZLOO EH
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€)ULHQGV OLYLQJ DEURDG VHH)XNXVKLPD DV LI LW ZHUH DQRW
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WR GLVVHPLQDWH DEURDG WKH LQIRUPDWLRQ JDLQHG WKURX
V\PSRVLXP
€(YDFXDWLRQ RUGHUV KDYH EHHQ OLIWHG IURP VRPH PXQLFLSD
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VHUYLFHV IRU HYDFXHHV PLJKW FHDVH LQ WKH QHDU IXWXUH
, ZRXOG OLNH WR XWLOL]H WKH LQIRUPDWLRQ
€, ZRXOG OLNH \RX WR FRQVLGHU D PHFKDQLVP WR FRQYH\ WK
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&XUUHQWO\ ZH DUH DSSURDFKLQJ WKH ILQDO \HDU RI D
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D QHZ VWDJH

$V WKH FHQWHU KDV HQJDJHG LQ KHDOWK DQG PHGLFDO FD
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7DEOH RI

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0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HGLFDO 8QLYHUVLW

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7$.(126+,7$ 6HLLFKL 3UHVLGHQW RI)XNXVKLPD 0HGLFDO 8QLYH

,QYLWHG 6SHP«P3DUNV
*RYHUQRU 8&+,%25, 0DVDR RI)XNXVKLPD 3UHIHFWXUH E\ 9LFH

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,QWURGXFWLRQ 2YHUYLHZ RI WKH)XNXVKLPD +HDOWK 0DQDJHPH
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)XNXVKLPD +HDOWK 0D«Q«D«3HPHQW 6XUYH\
0$768=8.$ 7DNDVKL)XNXVKLPD 0HGLFDO 8QLYHUVLW\

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6HVVLRQ &XUUHQW VWDWXV DQG HYDOXDWLRQ RI WK\URLG XOW
&KDLU 0,<$&+, $NLUD .XPD +RVSLWDO DQG .$72+ 5\RKHL ,WR
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H[DPLQDWLR«Q«B Q 78(
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7UDLQLQJ DQG HGXFDWLRQ IRU W«K«U3RLG H[DPLQHUV LQ)XN
.,7$2.$ 0DVDIXPL ,06 0L\RVKL *HQHUDO +RVSLWDO

6HVVLRQ &KDUDFWHULVWLFV RI WK\URLG F«DQF«SHU H«QG«WRU«D«DJH«
$<$ JHQHUDWLRQV
&KDLU 2.$0272 7DNDKLUR 7RN\R :RPHQ¶V 0HGLFDO 8QLYHUVLW\
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.$72+ 5\RKHL ,WR +RVSLWDO
&OLQLFDO IHDWXUHV DQG FRXUVHV RI SD«G«3DU\ WK\URLG F
<26+,'$ $NLUD .DQDJDZD +HDOWK 6HUYLFH $VVRFLDWLRQ
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6+,085$ +LURNL)XNXVKLPD 0HGLFDO 8QLYHUVLW\

7KH 3URFHHGLQJV RI «D«U3 , 'LVFXVVLRQ
&KDLU 2.$0272 7DNDKLUR 7RN\R :RPHQ¶V 0HGLFDO 8QLYHUVLW\

.H\QRWH /HFWXUH
&KDLU 3HWHU $1*(/26 7KH 8QLYHUVLW\ RI &KLFDJR 86$
6XUJLFDO WUHDWPHQW RI SHGLDWULF WK\URLG FDQFHU LQ -DS
68=8., 6KLQLFKL)XNXVKLPD 0HGLFDO 8QLYHUVLW\

6HVVLRQ &XUUHQW SURJUHVV LQ WKH WUHDWPHQW RI WK\URLG
&KDLU .,7$2.$ 0DVDIXPL ,06 0L\RVKL *HQHUDO +RVSLWDO DQG
68=8., *HQ ,QWHUQDWLRQDO 8QLYHUVLW\ RI +HDOWK DQG :H
&OLQLFDO SUDFWLFH JXLGHOLQHV IRU WK\URLG FDQFHU LQ -
2.$0272 7DNDKLUR 7RN\R :RPHQ¶V 0HGLFDO 8QLYHUVLW\
$FWLYH 6XUYHLOODQFH RI ORZ ULVN SDSLOODU\ PLFURFDUF
QHZ NQRZOHGJH
0,<$8&+, $NLUD .XPD +RVSLWDO
&XUUHQW VWDWXV RI WK\URLG FDQFHU WUHDWPHQW LQ RYHU
3HWHU $1*(/26 7KH 8QLYHUVLW\ RI &KLFDJR 86$

7KH 3URFHHGLQJV RI 3DUW , 'LVFXVVLRQ
&KDLU .,7$2.$ 0DVDIXPL ,06 0L\RVKL *HQHUDO +RVSLWDO DQG
68=8., *HQ ,QWHUQDWLRQDO 8QLYHUVLW\ RI +HDOWK DQG :H

3DUW0,HQWDO KHDOWK RI)XNXVKLPD SHRSOH DQG FDUH IRU WKHP
.H\QRWH /HFWXUH
&KDLU 0$('$ 0DVDKDUX)XNXVKLPD 0HGLFDO 8QLYHUVLW\
$GYDQFHV LQ PDQDJLQJ SV\FKRORJLFDO HuHFWV RI GLVDVWHUV
5LFKDUG $ %5<$17 8QLYHUVLW\ RI 1HZ 6RXWK :DOHV $XVWU

6HVVLRQ 0HQWDO KHDOWK RI)XNXVKLPD HYDFXHHV DQG LWV U
&KDLU <$%(+LURRNL)XNXVKLPD 0HGLFDO 8QLYHUVLW\
)XNXVKLPD GLVDVWHU DQG LWV SV\FKRVRFLDO HuHFWV &XUUH
0$('$ 0DVDKDUX)XNXVKLPD 0HGLFDO 8QLYHUVLW\
7KH ORQJ WHUP LPSDFW RI PDQ PDGH GLVDVWHUV RQ FRPPXQL
'RXJODV : :$/.(5 0HUF\ )DPLO\ &HQWHU 86$
3V\FKRORJLFDO HuHFWV RQ FKLOGUHQ LQ)XNXVKLPD DQG WK
8&+,<0 7RNLR 7DLVKR 8QLYHUVLW\
/HDUQLQJ IURP SUDFWLFH LQ WKH)XNXVKLPD &HQWHU IRU 'LVDVWH
:7%(,NXNR)XNXVKLPD &HQWHU IRU 'LVDVWHU 0HQWDO +H
7KH FXUUHQW PHQWDO KHDOWK LVVXHV DPRQJ HYDFXHHV RX
1$.$-,0$ 6DWRPL 0XVDVKLQR 8QLYHUVLW\

7KH 3URFHHGLQJV RI 3DUW ß 'LVFXVVLRQ
&KDLU 0$('$ 0DVDKDUX)XNXVKLPD 0HGLFDO 8QLYHUVLW\ DQG 8

&ORVLQJ 5HPDUNV
6$,72 .L\RVKL 9LFH 3UHVLGHQW RI)XNXVKLPD 0HGLFDO 8QLYHU

3KRWR *DOOHU\«««3
5HVXOWV RI 4XHVWLRQQDLUH«««3
*ORVVDU\«««3

1DYLJDWRU 1RWHV 7LPH DQG $JDLQ
.HQQHWK (12//(7)XNXVKLPD 0HGLFDO 8QLYHUVLW\ «««3

3UHVHQWHUV¶ ELRJUDSKLHV

%LRJUDSKLHV DUH FXUUHQW DV RI WKH

,QWURG

.$0,<$ .HQML 0' 3K'

9LFH 3UHVLGHQW)XNXVKLPD 0HGLFDO 8QLYHUVLW\ ([HFXWLYH 'LUHFWRU +HDOWK 0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HGLFDO 8QLYHUVLW\ 9LFH 3UHVLGHQW +LURVKLPD 8QLYHUVLW\ 'LUHFWRU 5DGLDWLRQ (PHUJHQ

'U .DPL\D .HQML LV D YLFH SUHVLGHQW RI ERWK +LURVKLPD 8QLYHUVLW\ JUDGXDWHG IURP +LURVKLPD 8QLYHUVLW\ 6FKRRO RI 0HGLFLQH DQG +8 V 5HVHDUFK ,QVWLWXWH IRU 5DGLDWLRQ %LRORJ\ DQG 0HGLFLQH WR UDGLDWLRQ HPHUJHQF\ PHGLFLQH +H EHFDPH D SURIHVVRU RI WKH ,QV DQG 6LQFH 'U .DPL\D KDV GLUHFWHG +8 V 5DGLD &HQWHU $IWHU WKH QXFOHDU DFFLGHQW LQ)XNXVKLPD KH ZDV DSSRL)XNXVKLPD 3UHIHFWXUH DQG WKHUHDIWHU D YLFH SUHVLGHQW RI)XN GLUHFWRUVKLS RI)08 V 5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU WKH DV SUHVLGHQW RI WKH -DSDQ 5DGLDWLRQ 5HVHDUFK 6RFLHW\ DQ RI 5DGLDWLRQ 5HVHDUFK ,&55 LQ .\RWR +H KDV EHHQ D FRXQFLO P RI WKH 5DGLDWLRQ &RXQFLO RI WKH 1XFOHDU 5HJXODWLRQ $XWKRULW\ IRU 5DGLDWLRQ 5HVHDUFK $ZDUG FRPPHQGDWLRQ IRU KLV FRQWU 0LQLVWHU RI 6WDWH IRU 'LVDVWHU 0DQDJHPHQW DQG IURP WKH 3U 3URIHVVRU DW +LURVKLPD 8QLYHUVLW\ DQG D GLVWLQJXLVKHG UH

0$768=8.$ 7DNDVKL 0' 3K'

$VVRFLDWH 3URIHVVRU DQG 'LUHFWRU 2IILFH RI 7K\URLG 8OWUDVRXQG ([D &HQWHU IRU WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HG

'U 0DWVX]XND 7DNDVKL LV DQ DVVRFLDWH SURIHVVRU DW)XNXVKLPD 0H 0HGLFLQH LQ DQG FRPSOHWHG D 3K' LQ +H EHFDPH DQ DVVRFLDW DVVXPHG GLUHFWRUVKLS RI WKH 2IILFH RI 7K\URLG 8OWUDVRXQG ([DPL &HQWHU IRU WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH\

3D ,6HV'

68=8., 6DWRUX 0' 3K'

3URIHVVRU DQG 'LUHFWRU 2IILFH RI 7K\URLG 8OWUDVRXQG ([DPLQDWLRQ 3)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HGLFDO 8QLYHUVLW\

'U 6X]XNL 6DWRUX LV D SURIHVVRU DW)XNXVKLPD 0HGLFDO 8QLYHUVLW\ 0HGLFLQH LQ DQG HQWHUHG D SRVWJUDGXDWH FRXUVH DW 6KLQVKX 'XULQJ KLV SRVWJUDGXDWH FRXUVH KH ZDV ZRUNLQJ DV D UHVHDUFK D &KLFDJR +H PDLQO\ KDG VWXGLHG WK\URLG KRUPRQH DFWLRQ LQ EDVLF DV D IDFXOW\ PHPEHU LQ WKH 'HSDUWPHQW RI (QGRFULQRORJ\ DQG 0HW 6KLQVKX 8QLYHUVLW\ 0HGLFDO +RVSLWDO LQ EHIRUH EHFRPLQJ D SU ZDV DZDUGHG D 6KLFKLMR SUL]H IRU FRQWULEXWLRQV WR WK\URLGRORJ DFFHSWHG PHPEHUVKLS LQ WKH 5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWH)XNXVKLPD 0HGLFDO 8QLYHUVLW\ +H KDV EHHQ D FKLHI GLUHFWRU LQ W ,QWHUQDO 0HGLFLQH DW)XNXVKLPD 0HGLFDO 8QLYHUVLW\ +RVSLWDO V)ROORZ 8S &HQWHU DQG IRUPHUO\ &KLHI &OLQLFDO &DQFHU LQ

68=8., *HQ 0' 3K'

'LUHFWRU DQG 3URIHVVRU ,QWHUQDWLRQDO 8QLYHUVLW\ RI +HDOWK DQ

6SHFLDOWLHV UDGLDWLRQ SDWKRORJ\ UDGLDWLRQ HSLGHPLRORJ\ (PSOR\PHQW , JUDGXDWHG IURP WKH 8QLYHUVLW\ RI 7RN\R)DFXOW\ RI 1DWLRQDO ,QVWLWXWH RI 5DGLRORJLFDO 6FLHQFHV 1,56 &KLED DQG SDWKRORJLVW RQ WKH WHDP RI SK\VLFLDQV UHVSRQVLEOH IRU WUHDWLQ DW WKH 5DGLDWLRQ (IIHFWV 5HVHDUFK)RXQGDWLRQ 5(5) +LURVKLPD &KLHI 6FLHQWLVW LQ)URP WR , ZRUNHG DW WKH 1DWLRQDO (QYLURQPHQWDO +HDOWK 6LQFH , KDYH EHHQ ZRUNLQJ DW WKH ,8+: $GMXQFW DSSRLQWPHQWV)URP WR D PHPEHU RI (PHUJHQF\ 5HVS &RPPLVVLRQ)URP D PHPEHU RI (PHUJHQF\ 5HVSRQVH &RPPLWW $ZDUG &RPPHQGDWLRQ IURP WKH -DSDQHVH 0LQLVWHU RI 6WDWH IRU 'LV

6(728 1RULNR 3K'

$VVRFLDWH 3URIHVVRU 'HSDUWPHQW RI 'LVDVWHU 3V\FKLDWU\ DQG 5DGLD\ 0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HGLFDO 8QLYHUVLW\

&HUWLILHG SV\FKRORJLVW VSHFLDOL]LQJ LQ FDUH IRU ORVV DQG JULHI IDPLOLHV DQG VWUHVVHV RI VXSSRUW ZRUNHUV $IWHU JUDGXDWLQJ IU 6FLHQFH DW .REH 8QLYHUVLW\ , REWDLQHG D 0DVWHU RI 3V\FKRORJ\ LQ 6KLQZD :RPHQ¶V 8QLYHUVLW\ DQG D 'RFWRU RI +HDOWK 6FLHQFH IURP .R , ZRUNHG LQ KRVSLWDO SHGLDWULFV DQG EHFDPH D OHFWXUHU DW WKH 8QLYHUVLW\ LQ DQG DQ DVVRFLDWH SURIHVVRU LQ ,Q , MRLQ 0HGLFDO 8QLYHUVLW\ )08 DQG LQ -XQH RI WKH VDPH \HDU ZDV FR ([DPLQDWLRQ 7(DW)08¶V 5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IR &XUUHQWO\ , OHDG WKH ³7K\URLG 6XSSRUW 7HDP´ WKDW SURYLGHV SV\ VHFRQGDU\ FRQILUPDWRU\ H[DPLQDWLRQ LQ 7((

.,7$2.$ 0DVDIXPL 0' 3K'

'LUHFWRU (QGRFULQH DQG 0HWDEROLVP &HQWHU ,06 0L\RVKL *HQHUDO +R

+DYLQJ JUDGXDWHG IURP +LURVDNL 8QLYHUVLW\ 6FKRRO RI 0HGLFLQH L 'U .LWDRND EHFDPH D UHVHDUFK DVVRFLDWH RI WKH 'HSDUWPHQW RI ,Q DQG WKHQ DW WKH 8QLYHUVLW\ RI 7RN\R +RVSLWDO LQ ,Q KH DV RI (QGRFULQH DQG 0HWDEROLVP DW 6KRZD *HQHUDO +RVSLWDO DQG DOV DV D SDUW WLPH OHFWXUHU IURP WR 'U .LWDRND ZDV DSSRLQW *HQHUDO +RVSLWDO LQ DQG DQ DVVLVWDQW WR WKH GLUHFWRU RI WKH KHDG RI WKH ,QSDWLHQW &OLQLFDO 'HSDUWPHQW DQG WKH KHDG RI EHHQ D PHPEHU RI WKH ([SHUW &RPPLWWHH IRU 7K\URLG ([DPLQDWLRQ FKDLUPDQ RI WKH)XNXVKLPD 3UHIHFWXUH -RLQW 6XSSRUW &RPPLWWHH WKH 3URMHFW 5HYLHZ &RPPLWWHH WKH FKDLUPDQ RI WKH &HUWLILFDWLRQ 'U .LWDRND ZDV DSSRLQWHG DV GLUHFWRU RI WKH (QGRFULQH DQG 0HW +H ZDV WKH SUHVLGHQW RI WKH WK $QQXDO 6FLHQWLILF 0HHWLQJ RI W DQG UHFHLYHG WKH WK 6SHFLDO 6RFLHW\ $ZDUG IURP WKH -DSDQ 6RFL

6HV..

.$72+ 5\RKHL 0' 3K'

'LUHFWRU DQG 6FLHQWLILF $GYLVRU 6XJLFDO 3DWKRORJ\ 'HSDUWPHQW ,\ 3URIHVVRU (PHULWXV 8QLYHUVLW\ RI <DPDQDVKL

'U .DWRK HDUQHG DQ 0' IURP ,ZDWH 0HGLFDO 8QLYHUVLW\ 6FKRRO RI 0H XQLYHUVLW\ LQ +H ZDV DSSRLQWHG DV D OHFWXUHU DW WKH XQLYHU LQ WKH 'HSDUWPHQW RI 3DWKRORJ\ :DOHV 8QLYHUVLW\ 8. 5HWXUQLQJ WKH 6HFRQG /DERUDWRU\ RI WKH 'HSDUWPHQW RI 3DWKRORJ\ <DPDQDVK VWXGLHG LQ WKH 'HSDUWPHQW RI 3DWKRORJ\ $GGHQEURRN¶V +RVSLWD SURIHVVRU RI WKH 'HSDUWPHQW RI 0HGLFLQH RI <DPDQDVKL 0HGLFDO 3DWKRORJ\ $IWHU <DPDQDVKL 8QLYHUVLW\ DQG <DPDQDVKL 0HGLFDO <DPDQDVKL LQ KH EHFDPH D SURIHVVRU RI LWV)DFXOW\ RI 0HGLFLQ 'HSDUWPHQW RI 3DWKRORJ\ DW WKH 8QLYHUVLW\ RI <DPDQDVKL +RVSLWD 'U .DWRK UHWLUHG IURP WKH 8QLYHUVLW\ RI <DPDQDVKL LQ 3URIHV +RVSLWDO +LV UHVHDUFK DUHD LV WK\URLG GLVHDVH SDWKRORJ\ DQG UHFHLYHG WKH -DSDQ 3DWKRORJ\ $ZDUG -DSDQ 6RFLHW\ RI 3DWKRORJ\ +LVWRFKHPLVWU\ DQG &\WRFKHPLVWU\ LQ +H KDV DVVXPHG PDQ\ UR -DSDQHVH 6RFLHW\ RI 3DWKRORJ\ 3UHVLGHQW RI WKH -DSDQHVH 'LYLVLR GLUHFWRU RI WKH -DSDQ 6RFLHW\ RI +LVWRFKHPLVWU\ DQG &\WRFKHPLV D GLUHFWRU RI WKH -DSDQ (QGRFULQH 3DWKRORJ\ 6RFLHW\ +H DOVR VHU RI WKH 3UHIHFWXUDO 2YHUVLJKW &RPPLWWHH IRU WKH)XNXVKLPD +HDO

<26+,'$ $NLUD 0' 3K'

'LUHFWRU 'HSDUWPHQW RI *\QHFRORJLF DQG %UHDVW 6FUHHQLQJ .DQDJDZ 9LVLWLQJ 3URIHVVRU <RNRKDPD &LW\ 8QLYHUVLW\

$IWHU JUDGXDWLQJ IURP <RNRKDPD &LW\ 8QLYHUVLW\ 6FKRRO RI 0HGLFL DW <RNRKDPD &LW\ 8QLYHUVLW\ DQG .DZDVDNL 0XQLFLSDO +RVSLWDO IU LQ JHQHUDO VXUJHU\ DQG EUHDVW DQG HQGRFULQH VXUJHU\ DW WKH ' ,WR +RVSLWDO +DYLQJ HDUQHG D 3K' LQ KH ZRUNHG DV D OHFWXUH WKH 8QLYHUVLW\ RI 7VXNXED IURP WR 'U <RVKLGD VHUYHG DV W 7K\URLG 6XUJHU\ .DQDJDZD &DQFHU &HQWHU IURP WR DQG GL 6XUJHU\ .DQDJDZD &DQFHU &HQWHU IURP WR +H KDV DOVR DVV 6RFLHW\ IRU &OLQLFDO 6XUJHU\ GHOHJDWH RI WKH -DSDQ (QGRFULQH 6 7K\URLG 6XUJHU\ D GLUHFWRU RI WKH -DSDQ (QGRFULQH 6XUJHU\ FKD &HUWLILFDWLRQ %RDUG RI WKH -DSDQ $VVRFLDWLRQ RI (QGRFULQH 6XU FKDLUPDQ RI WKH 7K\URLG &DQFHU 0DQDJHPHQW *XLGHOLQHV 'HYHORS DSSRLQWHG WR GLUHFW WKH 'HSDUWPHQW RI *\QHFRORJLF DQG %UHDVW DOVR D YLVLWLQJ SURIHVVRU DW <RNRKDPD &LW\ 8QLYHUVLW\ +H VHUYH 6XEFRPPLWWHH RI WKH 3UHIHFWXUDO 2YHUVLJKW &RPPLWWHH IRU WKH) PHPEHU RI WKH 2YHUVLJKW &RPPLWWHH WR SUHVHQW

6+,085$ +LURNL 0' 3K'

3URIHVVRU DQG &KDLU RI WKH 'HSDUWPHQW RI /DERUDWRU\ 0HGLFLQH DQG 'L
5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU WKH)XNXVKLPD +HDOWK 0DQDJHP

'U 6KLPXUD +LURNL LV D SURIHVVRU RI WKH 'HSDUWPHQW RI /DERUDWRU
8OWUDVRXQG ([DPLQDWLRQ 5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU
IURP <DPDQDVKL 0HGLFDO 8QLYHUVLW\ 6FKRRO RI 0HGLFLQH LQ DQG
LQ WKH 3RVWJUDGXDWH 6FKRRO RI <DPDQDVKL 0HGLFDO 8QLYHUVLW\ LQ
\HDUV KH ZRUNHG LQ HGXFDWLRQ UHVHDUFK DQG PHGLFDO FDUH RI HQGR
0HGLFLQH LQ WKH 8QLYHUVLW\ RI <DPDQDVKL +H VHUYHG DV D SURIHVVR
LQYROYHG LQ WKH 7K\URLG 8OWUDVRXQG ([DPLQDWLRQ SURJUDP VLQFH
RI 7K\URLG 8OWUD' 5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU

3D ¸.H\QRWH /

68=8., 6KLQLFKL 0' 3K'

3URIHVVRU DQG &KDLU 'HSDUWPHQW RI 7K\URLG DQG (QGRFULQRORJ\ )XNX

*UDGXDWHG IURP)XNXVKLPD 0HGLFDO 8QLYHUVLW\ 6FKRRO RI 0HGLFLQ
0HGLFDO 8QLYHUVLW\ LQ +H VSHQW RQH \HDU IURP 0DUFK WR $
,QVWLWXWH &$ 86$ +H EHFDPH 3URIHVVRU DQG 'LUHFWRU 'LYLVLRQ RI
RI 2UJDQ 5HJXODWRU\ 6XUJHU\ )XNXVKLPD 0HGLFDO 8QLYHUVLW\ 6FKRR
EHFDPH 3URIHVVRU DQG &KDLUPDQ 'HSDUWPHQW RI 7K\URLG DQG (QGR
(QGRFULQH 6XUJHU\ +LV VSHFLDOWLHV DUH HQGRFULQH VXUJHU\ PROH
EHFDPH WKH 0HGLFDO $GPLQLVWUDWRU RI 'LVDVWHU 0HGLFDO &DUH &R
GLVDVWHU IURP 0DUFK +H EHFDPH 'LUHFWRU 'HSDUWPHQW RI 7K\URL
WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XUYH\ )XNXVKLPD 0HGLFDO 8QLYHU
$VVRFLDWLRQ RI (QGRFULQH 6XUJHRQV -$(6 DQG WKH IRUPHU 3UHVLGHQ
-$%76 DQG FRXQFLOV RI -DSDQ 7K\URLG $VVRFLDWLRQ 7 DQG $VLDQ $

6HV'

2.$0272 7DNDKLUR 0' 06F 3K'

3URIHVVRU &KDLU 'HSDUWPHQW RI %UHDVW (QGRFULQH DQG 3HGLDWULF

'U 2NDPRWR 7DNDKLUR LV D SURIHVVRU RI VXUJHU\ DW 7RN\R :RPHQ¶V
8QLYHUVLW\ 6FKRRO RI 0HGLFLQH LQ DQG FRPSOHWHG D PDVWHU¶V G
DW 0F0DVWHU 8QLYHUVLW\ LQ +H VHUYHG DV D SURIHVVRU LQ WKH
EHFDPH D SURIHVVRU DQG FKDLU RI 'HSDUWPHQW RI 6XUJHU\ ,, LQ 7
(QGRFULQH DQG 3HGLDWULF 6XUJHU\ LQ +H VHUYHG DV D FKDLUPD
(QGRFULQH 6XUJHRQV RQ WKH *XLGH(

0,<$8&+, $NLUD 0' 3K'

3UHVLGHQW DQG &22 'HSDUWPHQW RI 6XUJHU\ .XPD +RVSLWDO

'U 0L\DXFKL LV 3UHVLGHQW DQG &22 RI .XPD +RVSLWDO &HQWHU IRU (
HQGRFULQH VXUJHRQ HVSHFLDOO\ LQWHUHVWHG LQ WK\URLG DQG SDU
8QLYHUVLW\ 0HGLFDO 6FKRRO LQ DQG UHVHFWLYHO\ +H ZDV $V
0HGLFDO 8QLYHUVLW\ XQWLO KH ZDV DSSRLQWHG WR 9LFH 3UHVLGHQW F
SRVLWLRQ $ERXW RSHUDWLRQV LQFOXGLQJ DERXW WK\URLG FL
LV D 9LVLWLQJ 3URIHVVRU RI 6XUJHU\ 1LSSRQ 0HGLFDO 7RN\R
6LQFH KH KDV EHHQ VHUYLQJ DV &KDLUPDQ RI WKH $VLDQ $VVRFLD
3UHVLGHQW RI WKH ,QWHUQDWLRQDO $VVRFLDWLRQ RI (QGRFULQH 6XUJH
3UL]HV 6KLFKLMR 3UL]H -DSDQ 7K\URLG $VVRFLDWLRQ LQ
0L\DNH 3UL]H -DSDQ 7K\URLG $VVRFLDWLRQ LQ
%HVW (QGRFULQH 6XUJHRQ RI WKH <HDU 3UL]H -DSDQ (QGRFULQH 6R
$VLD 2FHDQLD 7K\URLG $VVRFLDWLRQ 3UL]H 1DJDWDNL)8-,),/0 3UL]H
/LJKW RI /LIH +RQRU DW 0HPRULDO 6ORDQ .HWWHULQJ &DQFHU &HQWH
3XEOLFDWLRQV SDSHUV LQ (QJOLVK DQG SDSHUV LQ -DSDQHVH DV

3HWHU $1*(/26 0' 3K')$&6

/LQGD .RKOHU $QGHUVRQ 3URIHVVRU RI 6XUJHU\ 9LFH &KDLUPDQ IRU (WKLF
&KLHI RI (QGRFULQH 6XUJHU\ 'HSDUWPHQW RI 6XUJHU\ 7KH 8QLYHUVLW\ RI

'U $QJHORV FRPSOHWHG KLV XQGHUJUDGXDWH GHJUHH PHGLFDO VFKRR
FRPSOHWHG D UHVLGHQF\ LQ *HQHUDO 6XUJHU\ DW 1RUWKZHVWHUQ 8QL
0HGLFDO (WKLFV DW WKH 8QLYHUVLW\ RI &KLFDJR DQG LQ (QGRFULQH 6X
EXV\ HQGRFULQH VXUJHRQ ZKR KDV ZULWWHQ ZLGHO\ RQ LPSURYLQJ RX
LQYDVLYH HQGRFULQH VXUJHU\ DQG HWKLFDO DVSHFWV LQ WKH FDUH R
UHYLHZHG SXEOLFDWLRQV DQG KDV DXWKRUHG RU FR DXWKRUHG DOO ERR
,VVXHV LQ &DQFHU DQG 3DWLHQW &DUH LWR RI WKH $PHULFDQ &ROOHJH R
6XUJLFDO 'LQLFDO *RYHUQRU RI WKH $PHULFDQ &RROHJH RI 6XUJH
RI (QGRFULQH 6XUJHRQV DQG D &RXQFLORU RI WKH $PHULFDQ %RDUG RI

3D'ß.H\ORWH

5LFKDUG $ %5<$17 3K'

6FLHQWLD 3URIHVVRU 6FKRRO RI 3V\FKRORJ\ 8QLYHUVLW\ RI 1HZ 6

5LFKDUG $ %U\DQW LV D 6FLHQWLD 3URIHVVRU RI 3V\FKRORJ\ DW WKH 8
KDV ZRUNHG RQ SRVWWUDXPDWLF VWUHVV GLVRUGHU DQG RWKHU GLVDV
NH\ JHQHWLF QHXUDO DQG SV\FKRORJLFDO KDFWRUV RI SHGSLDQ\ 87
XVHG WR PDQDJH GLVDVWHU UHODWHG FRQGLWLRQV +H KDV FRQVXOWH
WVXQDPL +XUULFDQH .DWULQD DQG WKH WHUURULVW DWWDFNV +L
LQWR RYHU ODQJXDJHV DQG XVHG LQ PDQ\ FRXQWULHV 3URIHVVRU %
MRXUQDO DUWLFOHV +H KDV VHUYHG RQ PDMRU LQWHUQDWLRQDO FRP
UHFRJQLWLRQ RI KLV VHUYLFHV WR PDQDJHPHQW RI WUDXPDWLF VWUHV
RI WKH 2UGHU RI $XVWUDOLD

6HV'

0$('$ 0DVDKDUX 0' 3K'

3URIHVVRU DQG &KDLU 'HSDUWPHQW RI 'LVDVWHU 3V\FKLDWU\ 6FKRRO RI
'HSDUWPHQW RI +HDOWK 6XUYH\ 3HUVRQDO 6XSSRUW DQG 'LUHFWRU RI WKH
5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU WKH)XNXVKLPD +HDOWK 0DQDJ

3URIHVVRU 0DHGD LV 3URIHVVRU DQG &KDLU RI WKH 'HSDUWPHQW RI 'LVD
8QLYHUVLW\ LQ)XNXVKLPD -DSDQ
3URIHVVRU 0DHGD UHFHLYHG KLV PHGLFDO GHJUHH DW .XUXPH 8QLYHUVL
KLV UHVLGHQF\ WUDLQLQJ LQ SV\FKLDWU\ DW .XUXPH 8QLYHUVLW\ +RV
$VVRFLDWH 3URIHVVRU EHIRUH DVVXPLQJ KLV FXUUHQW UROHV
3URIHVVRU 0DHGD VHUYHG DV WKH 3UHVLGHQW RI -DSDQHVH 6RFLHW\ RI
DFWLYHO\ LQYROYHG LQ SURYLGLQJ SV\FKLDWULF H[DPLQDWLRQV DQG F
VHYHUDO PDMRU GLVDVWHUV WKDW KDYH RFFXUUHG LQ -DSDQ SDUWLFX
3URIHVVRU 0DHGD¶V FXUUHQW FOLQLFDO DQG UHVHDUFK LQWHUHVWV O
)XNXVKLPD QXFOHDU DFFLGHQW $V 9LFH 'LUHFWRU RI WKH)XNXVKLPD &
0HQWDO +HDOWK DQG /LIH 6W\OH 6XUY\ WR IDFLOLWDWH DGHTXDWH FD
SUREOHPV IROORZLQJ VDFFL

'RXJODV : :$/.(5 3K'

&KLHI 3URJUDPV 'LUHFWRU 0HUF\ )DPLO\ &HQWHU

'RXJ :DONHU LV WKH &KLHI 3URJUDPV 'LUHFWRU DW 0HUF\ )DPLO\ &HQW
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GHVWUXFWLRQ 6LQFH KDYLQJ FUHDWHG 3URMHFW)OHXU GH OLV KLV H[
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DFURVV WKH 8QLWHG 6WDWHV DQG DEURDG
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DQG $IULFD +H FXUUHQWO\ VHUYHV DV D FRQVXOWDQW WR WKH &RXQFL
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Outline of Fukushima Health Management Survey

■ Type of survey (Basic survey to estimate individual external exposure dose for four months after the accident and detailed survey to understand individual health condition)

Type	Participants	Number	Method of survey / response
Basic survey	Residents / visitors of Fukushima Prefecture during the disaster	Approx. 2.05 million	Fill in survey form →post
Detailed survey	Preliminary baseline : All residents of age 16 or less at the time of the disaster Full-scale : In addition to those mentioned above, people who were born from April 2, 2011 to April 1, 2012	Approx. 368,000 Approx. 381,000	Consult at school / medical institution /public facility
Thyroid examination			
Comprehensive health check	Residents of 13 municipals in evacuation zones (Implemented as prefectural project except for above)	Approx. 210,000	Consult at medical institution / municipal health examination venue etc.
Mental health lifestyle survey	Residents of 13 municipals in evacuation zones	Approx. 210,000	Fill in survey form →post or Web response
Pregnancy and birth survey	Those who received a Maternal and Child Handbook in Fukushima, Those who delivered in Fukushima	14,500 - 16,000 / each year	Fill in survey form →post or Web response

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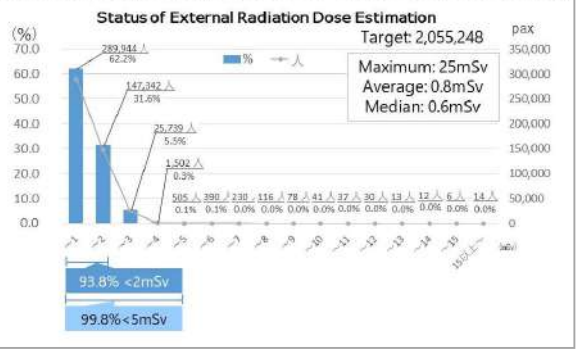
Basic Survey - Results

as of Mar. 31, 2019

External Radiation dose for 554,000 people have been calculated so far.
Out of which, external radiation dose levels of 466,000 people, excluding radiation workers and respondents who did not have a full 4-month record, were estimated.



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Thyroid Examination - Results

As of Jun. 30, 2019

		Preliminary Baseline (1st Exam)	Full-scale Screening (2nd Exam)	Full-scale Screening (3rd Exam)	Full-scale Screening (4th Exam)
Fiscal Year		2011-2013	2014-2015	2016-2017	2018-2019
N0.of target population		367,637	381,244	336,669	294,158
Participation rate of primary exam		81.7%	71.0%	64.7%	40.1%
Target population of confirmatory exam		2,293	2,227	1,499	655
Participation rate of confirmatory exam		92.9%	84.1%	72.7%	59.8%
Malignant or suspicious for malignancy (FNAC)		116	71	29	13
No. of people received surgery		102	52	19	1
Pathological Diagnosis	Papillary Cancer	100	51	19	1
	Low-differentiated cancer	1			
	Others	1	1		

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Comprehensive Health Check - Results

Diseases that are considered as being attributable to evacuation due to the Great East Japan Earthquake

- *Obesity*
- *Hypertension*
- *Diabetes*
- *Dyslipidemia (HDL-C)*
- *Chronical Kidney Diseases*
- *Liver Functional Impairment*
- *Polycytemia*

Diseases that increased after the earthquake

- *Atrial Fibrillation*

Diseases that increased after the earthquake but reduced after 2013

- *Hepatobiliary enzyme abnormality (liver functional impairment): Daily exercise and breakfast are the key factors.*

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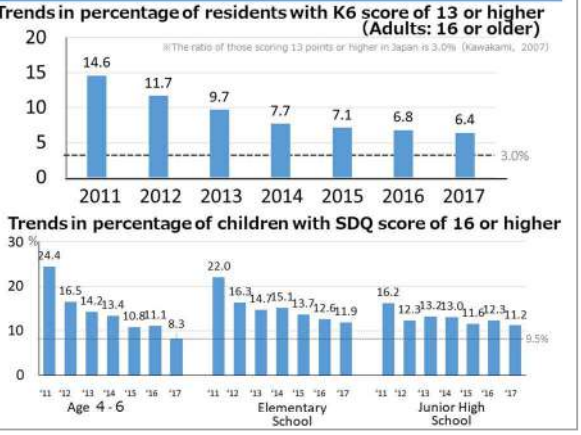
Mental Health and Lifestyle Survey - Results



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Pregnancy and Birth Survey - Results

(%)

	Rate of preterm deliveries		Rate of low birth weight infants		Rate of congenital anomalies	
	Fukushima	National*	Fukushima	National*	Fukushima	General standard
FY 2011	4.8	5.7	8.9	9.6	2.85	
FY 2012	5.7	5.7	9.6	9.6	2.39	
FY 2013	5.4	5.8	9.9	9.6	2.35	
FY 2014	5.4	5.7	10.1	9.5	2.30	3~5**
FY 2015	5.8	5.6	9.8	9.5	2.24	
FY 2016	5.4	5.6	9.5	9.4	2.55	
FY 2017	5.4	5.7	9.4	9.4	2.38	

* Vital Statistics (Ministry of Health, Labor and Welfare)
** Clinical Practice Guidelines for Obstetrics 2014

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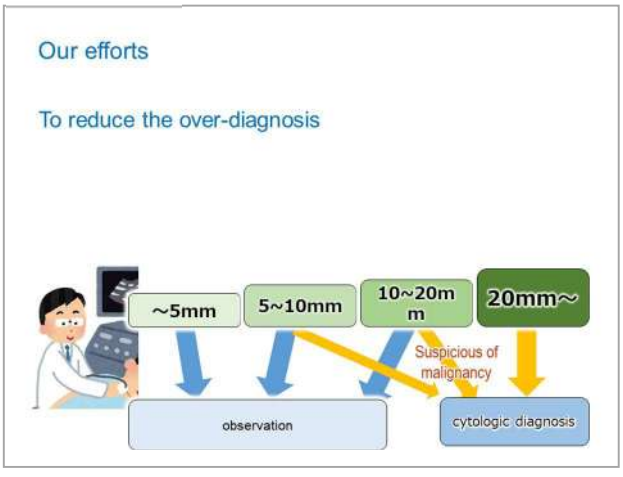

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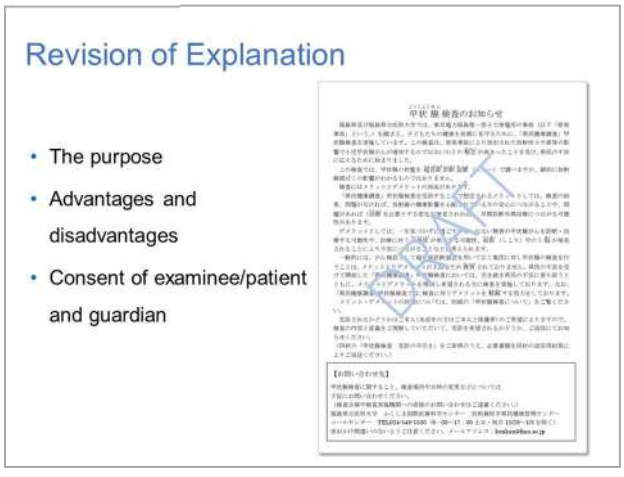

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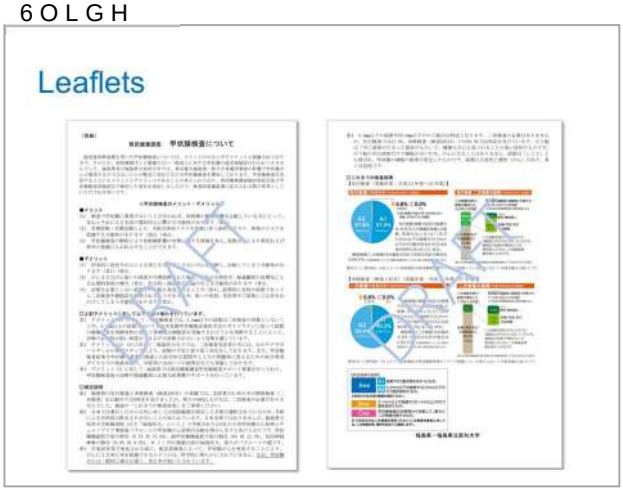

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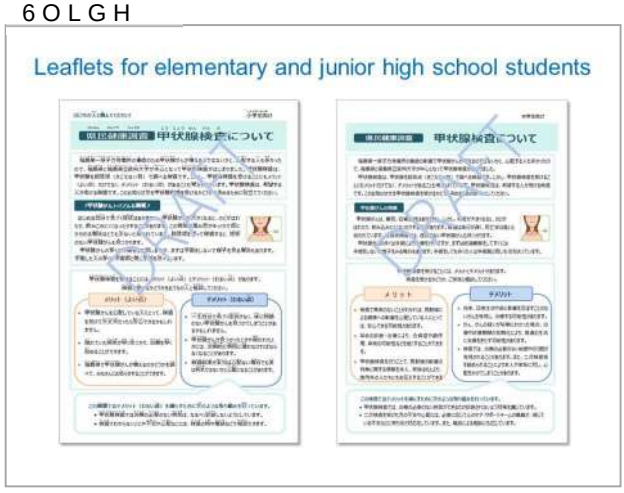

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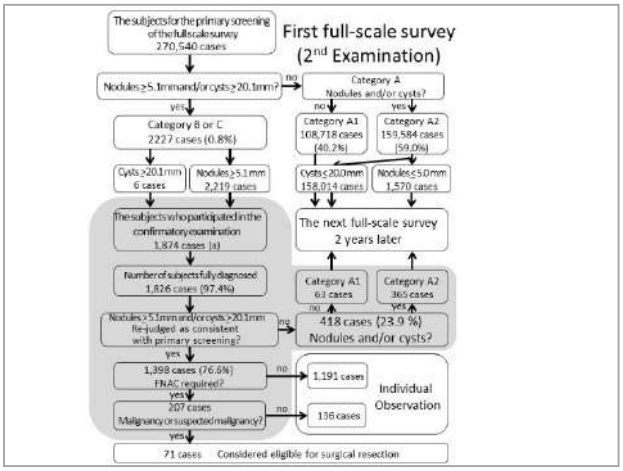

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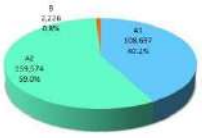
Results of the First Full-Scale Survey (2nd Examination)

- The first FSS started in April, 2014.
- Eligible population: 381,244 residents including prenatal children as of the time of the disaster.
- No. of examinees/participation rate:270,540 / 71.0%.
- A1: 108,718 (40.2%),
  A2: 159,584 (59.0%)
  B: 2,227 (0.8%)
  C: 0 (0%)

Confirmatory examination



Radiation Medical Science Center for the FHM survey, FMU

6OLGH

Malignant or suspected malignant cases diagnosed by FNAC

First full-scale survey (2nd Examination) conducted Apr. 2014 – Mar. 2018

Results of FNAC	
Total	71
Numbers by gender	Male: 32 Female: 39
Mean age (SD, min-max)	16.9 years (3.2, 9-23) (@diagnosis)
	12.6 years (3.2, 5-18) (@disaster)
Mean tumor size (SD, min-max)	11.1mm (5.6 mm, 5.3-35.6 mm)

49 surgical cases: 48 papillary carcinoma (PTCs) and 1 thyroid cancer of other variant

Radiation Medical Science Center for the FHM survey, FMU

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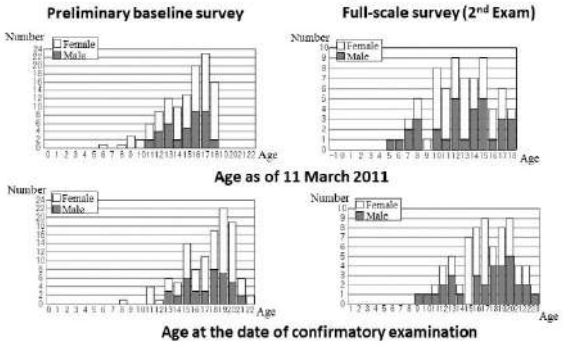
Malignant or suspected malignant cases per FNAC by age and gender as of March 31, 2017



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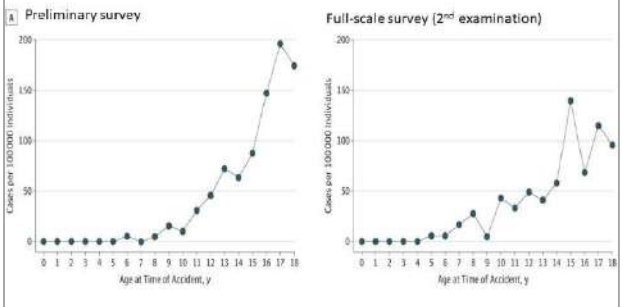
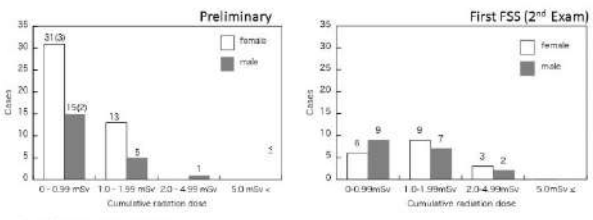
Prevalence and age distribution of malignant or suspected malignant cases



JAMA Otolaryngol Head Neck Surg 2019; 145: 4-11

6OLGH

Prevalence of malignant and suspected malignant cases by radiation dose estimated from activity record of 4 months post accident



Thyroid 2016, 26: 843-851

( ) = No. of cases with radiation dose calculated by activity record of less than 4 months

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Area	Evacuation area	Naka-Dori	Hama-Dori	Aizu area	計
受診者数**	32,006	140,582	46,406	27,693	246,687
年齢（歳）	11.8	11.9	12.6	12.3	12.1
本格検査二次検査対象者数（B判定）	329	1135	379	221	2,064
本格検査B判定率（B判定/一次検査受診者）,%	1.03	0.81	0.82	0.80	0.84
本格検査B判定中の先行検査B判定者数	69	391	161	110	731
本格検査B判定中の先行検査B判定者,%	21.0	34.4	42.5	49.8	35.4
二次検査受診者数	281	920	308	166	1,675
二次検査受診率,%	85.4	81.1	81.3	75.1	81.2
細胞診実施数	38	119	24	9	190
細胞診実施数（先行検査B判定者）	0	10	14	4	28
細胞診実施率（実施数/二次検査受診者数）,%	13.5	12.9	7.8	5.4	11.3
細胞診実施率（先行検査B判定者のみ実施率）,%	0.0	1.1	4.5	2.4	1.7
細胞診実施率（先行検査B判定以外者のみ実施率）,%	13.5	11.8	3.2	3.0	9.7
悪性ないし悪性疑い者数	17	39	10	4	70
悪性ないし悪性疑い者／受診者（10万人対人）	53.1	27.7	21.6	14.4	28.4
平均検査間隔（年）***	2.48	2.07	2.18	1.87	2.12

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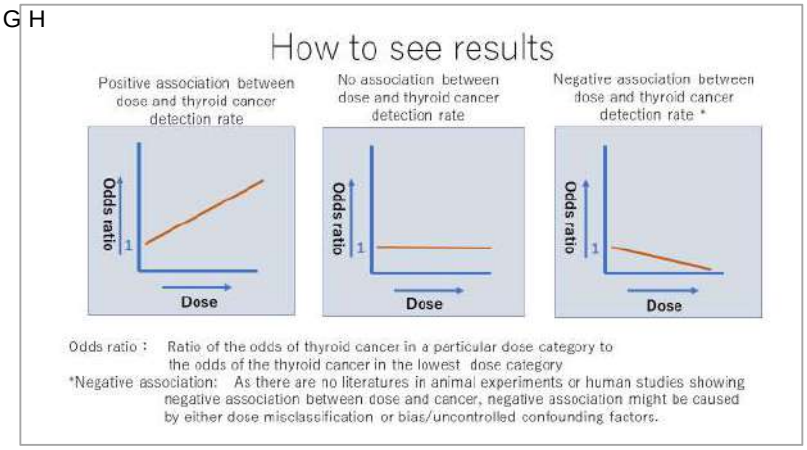

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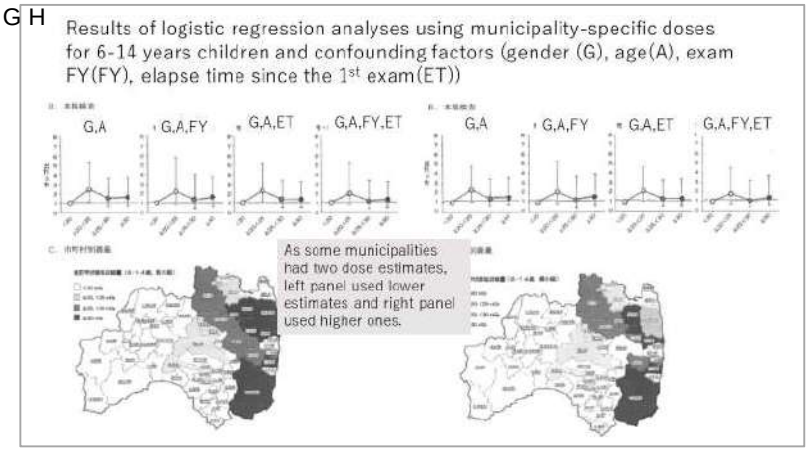

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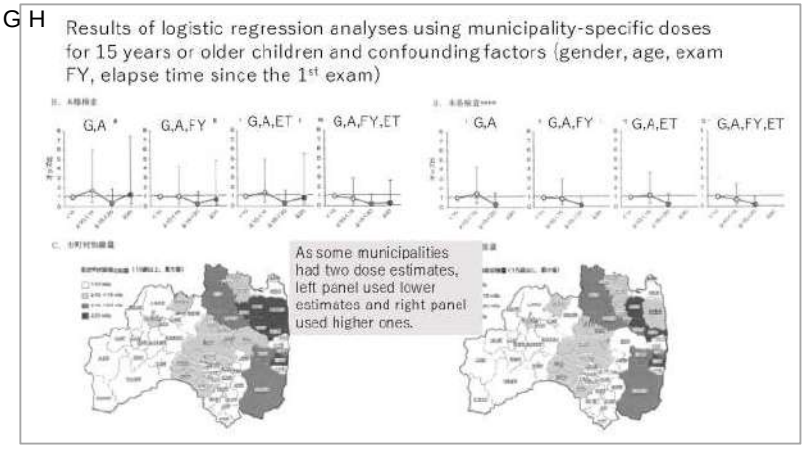

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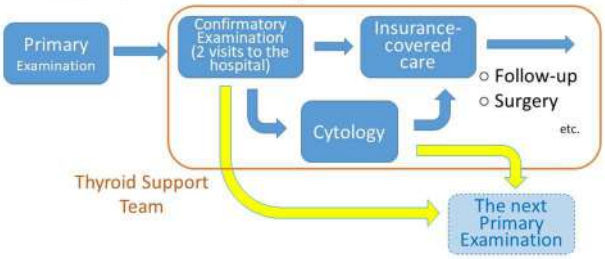
Thyroid Support Team at Fukushima Medical University (November 2013-now)

Four staff members, including three full-time support staff members (all nurses) and one part-time psychologist

The team provides support from the confirmatory thyroid examination to health care services covered by health insurance.



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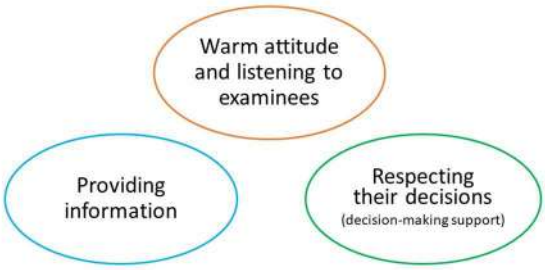
Role of the Thyroid Support Team

Why have I been picked out for the confirmatory examination?	Examination with a needle? I'm afraid!
Alleviate anxiety	Let know what to expect
Is it better for me to be examined?	Do I have thyroid cancer? No way...
Decision-making support	Help understand and accept the situation

6OLGH

Practice of Thyroid Support at Fukushima Medical University

Fukushima Medical University



Maintaining Neutrality

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Difficulty in Providing Support in TUE

- "Nuclear power accident" as the starting point
  → High level of anxiety
- Lack of sufficient evidence on diagnosis, clinical course, and prognosis on, and support for, childhood thyroid cancer
  + Features distinct from other cancers
- Diverse ways in which people view and understand the disease
  → Conflict of values
- Divergent information and deep-rooted stigma

In the above context, we

1. Respond to questions from examinees and their families.
2. Check if they have correctly understood the information. If not, correct misunderstanding and resolve any confusion by sorting out the information. Provide additional support to help them correctly understand their situation.
3. Provide decision-making support, bearing in mind that people can have different opinions.

6OLGH

Thyroid Ultrasound Screening: Past, Present, and Future

	When the screening first started (9 years ago)	Present	Future (for example, 9 years from now)
Time	From December 2011	2020	2029
Age of Examinees	0 to 18 years At the time of the disaster	9 to 27 years	18 to 36 years
Development Stage	Infancy Early childhood School age Adolescence	School age Adolescence～	Adolescence Early adulthood～ (AYA generation)

→ Decrease is being observed in the percentage of those 18 and over who come to receive examination

→ Need to anticipate examinees' future life-cycle development when providing support

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Support for the AYA Generation

Characteristics of the AYA (Adolescent and Young Adult) Generation

1. Mentally unstable and vulnerable
2. Communication with peers
3. Building intimate relations with specific persons (friendship, love)
4. Independence from parents (making one's own decisions)
5. Taking the first step towards realizing their dreams

For those requiring cytology or those diagnosed with thyroid cancer

→ In addition to supporting them to accept the situation, there is a need to

① Provide explanation on "what concretely to expect in the future" and give them "hope for the future"

② Support them towards "fulfilling future goals and dreams in school life, employment, and marriage"

③ Even if the parents have a strong say, "respect the will of the child" and "balance differences between the child and their parents"

From Guide on Supporting the AYA Cancer Patients, Kanehara Publishing Co., Ltd.

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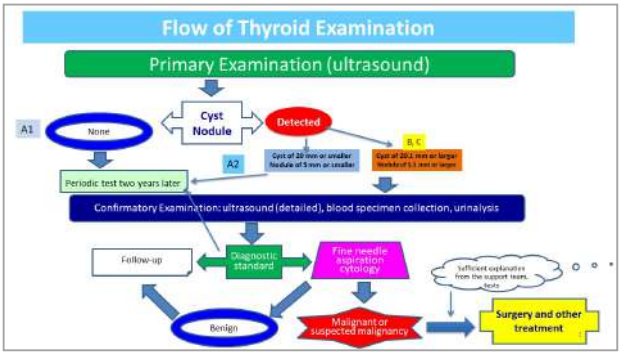
6OLGH

Thyroid Examination in Fukushima Prefecture

- To ensure a long-term implementation of thyroid examinations with constant high standard, it is essential to expand the human resource base in Fukushima Prefecture.
  - Eliminating gaps in different local areas of the prefecture
  - Accessibility of medical institutions
  - Ensuring continuity
  - Increasing satisfaction levels of the examinees

6OLGH



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Fukushima Prefecture Joint Committee for Thyroid Examination

- To certify the qualification of doctors and technologists conducting the primary examination of the thyroid examination, the Joint Committee for Supporting Fukushima Prefecture Joint Support Committee for Thyroid Examination was established within the Fukushima Medical Association.
- The members of the committee include board members of thyroid-related academic societies: board-certified fellows of the Japan Thyroid Association, the Japan Association of Endocrine Surgery and Japanese Society of Thyroid Surgery; board-certified sonographers of the Japan Society of Ultrasonics in Medicine; and representatives from Fukushima Medical Association, the Fukushima Association of Medical Technologists, and the Fukushima Association of Radiological Technologists.

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Qualification for the Primary Examination, with Applicability Limited to Fukushima Prefecture

- For the primary examination of the thyroid examination conducted under Fukushima Prefecture's Fukushima Health Management Survey (hereafter "thyroid examination"), a new qualification was created for doctors and technologists (diagnostic radiologic technologists, clinical technologists, and ultrasound sonographers) who undertake such examination.
  - Lectures and onsite training
  - Written exams
  - Onsite exams
  - Certification renewal

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Status of Certified Examiners

・Affiliated with an institution with an agreement with Fukushima Medical University
199 (62 doctors and 137 technologists)

・Affiliated with an institution without an agreement with Fukushima Medical University (Has case experience within the organization)
23 (4 doctors and 19 technologists)

・Affiliated with an institution without an agreement with Fukushima Medical University (Has no case experience within the organization)
80 (16 doctors and 64 technologists)

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Schedule for FY2019

Lecture/skill training (Basic/Applied)

Upskilling training

Certification Exam

Certification renewal lecture/Certification renewal skill training

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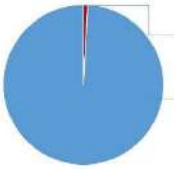
Young Thyroid Cancer

Cases operated at Ito hospital (2005-2018)
All malignancies **N=14812**

Clinically manifested thyroid cancer



Young Cancer (under 19)
N=134 (0.9%)

Adult Cancer (Over 20)
N=14678

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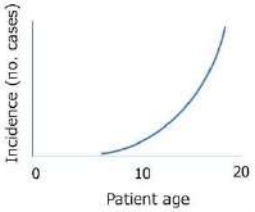
Take Home Message 1

Low incidence
Under 19 yrs of age : 0.9%
Under 15 yrs of age : 0.3%
Increase no. after puberty
Female predominant
Male: Female: 1:9
Histologic types



Papillary carcinoma 85%
Follicular carcinoma 12%
Medullary carcinoma 3%
Poorly differentiated carcinoma 0%
Anaplastic carcinoma 0%

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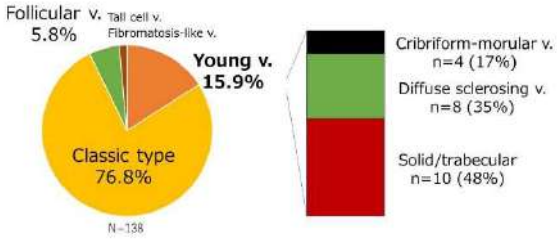
Young variants (134 cases) in papillary thyroid carcinomas



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Solid/trabecular variant of PTC

Young Patients and patients with a history of exposure to ionizing radiation
More frequently associated with lung metastasis
Slightly higher mortality rate
Genomic alteration: ***RET/PTC3***
Increase no. after **Chernobyl disaster**

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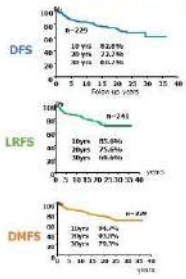
Survival-related factors in Pediatric PTCs

Multivariate analysis



Disease Free Survival (DFS)
Local Recurrence Free Survival (LRFS)
Distant Metastasis Free Survival (DMFS)

Gender (male)
Nodal Metastasis
Intraglandular metastasis
Extrathyroidal extension

Akaishi et al.

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Results

Favorable life prognosis
Distant metastasis is more frequent in under 15 yrs group than in 16-20 yrs group
Rather high recurrent rate
Recurrent rate can be associated with gender (male), nodal metastasis and intraglandular metastasis

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GLIIHU LQ \RXQJ SDWLHQWV YHUVXV DGXOWV 6OLGH 2I WKH

6OLGH

Recent reports from Japanese institutions

1. Y. Enomoto, K. Enomoto, S. Uchino et al. Clinical features, treatment, and long-term outcome of papillary thyroid cancer in children and adolescents without radiation exposure. World J Surg. 36:1241-1246, 2012. (Noguchi Thyroid Clinic and Hospital Foundation, Beppu)
2. Y. Ito, M. Kihara, Y. Tamura et al. Prognosis and Prognostic factors of papillary thyroid carcinoma in patients under 20 years. Endocrine J. 59:539-545, 2012. (Kuma Hospital, Kobe)
3. K. Sugino, M. Nagahama, W. Kitagawa et al Papillary thyroid carcinoma in children and adolescents: Long-term follow–up and clinical characteristics. World J Surg 39:2259-2265, 2015 (Ito Hospital, Tokyo)

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Brief Summary

Paper 1. 142 papillary thyroid cancer patients under 20 who received the initial treatment at Noguchi Thyroid Clinic and Hospital Foundation from 1961 to 2005, Male 17, Female 25 (male-female ratio 1:7.3)
Average age 16.3±2.7 Follow-up period 21.8±12.0 years

Paper 2. 110 papillary thyroid cancer patients under 20 who received the initial treatment at Kuma Hospital from 1987 to 2007, Male 12, Female 98 (male-female ratio 1:8)
Average age 17 (7-19) Follow-up period 149 months (17-296)

Paper 3. 227 papillary thyroid cancer patients up to 20 who received the initial treatment from 1979 to 2012 at Ito Hospital, Male 26, Female 201 (male-female ratio 1:7.7)
Average age 18 (7-20) Follow-up period 155 months (15-422)

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Clinical symptoms of young patients with papillary cancer at the first visit

- Summary of 3 papers -

Factor	Aggregation of 3 papers Young patients	All cases* (≈adults)
M-F ratio	male 55 : female 424 = 1 : 7.7	1 : 7.8
T factor	4cm ≥ cases about 25%	Approx. 10%
N factor	Clear LN metastasis(+) 143/479 (32%)	Approx. 5%
M factor	Distant metastasis(+) from the first visit 31/479 (6.5%)	1.2%

* Ito Y et al, Risk classification of papillary cancer. Endocrine J. 2019, 66 :127
Ito Y et al, Prognostic factor for recurrence of PTC. World J Surg. 2012 36 : 1274

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Treatment for young patients with papillary thyroid cancer

【Thyroid surgery】

	Total thyroidectomy n (%)	Non total thyroidectomy n(%)
Paper 1	12 (8.5)	130 (91.5)
Paper 2	59 (54.1)	50(45.9)
Paper 3	69 (30.4)	158(69.6)
Total	140(29.3)	338(70.7)

【Neck LN dissection】
Paper 1 dissection(-) 50, central neck dissection 20, **lateral neck dissection 72**
Paper 2 central neck dissection 51, lateral neck dissection 91
Paper 3 dissection(-)17, dissection(+) 210, (Prophylactic dissection 147, Therapeutic dissection 63)

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Radioactive iodine therapy for distant metastasis

Paper 3 Cases at Ito Hospital

- Distant metastasis at the first visit 20 + distant recurrence 12
  Total 32 cases
  RA therapy 29 cases (RI therapy refusal 2, waiting for the therapy 1)
- Results Complete cure: 4 (14%)
  Lesion reduction : 16 (55%)
  Unchanged:7(24%)
  Lesion enlargement: 2 (7%)

  Effective 20/29 cases = 69%
- PFS (progress-free survival ratio)
  10 years: 84.1%, 20 years: 69.9%, 30 years: 63.2%

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Clinical courses of young patients with papillary thyroid cancer

- Comparison: youth cases vs. all cases -

Reports	Recurrence %	Cancer death %
Aggregation of 3 reports Youth cases n = 479	21.1*	1.5
Kuma Hospital 1987-2004 All cases n = 5845 World J Surg. 2019 : 66,127	regional・LN 10.3 distant 2.6	1.9
Kanagawa Cancer Center 1990-2007 All cases n=488 Stage III IV = 40%	16.6	6.5

* Aggregation of two papers with the description of the number of recurrences

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Actions against a risk of overdiagnosis of thyroid cancer in Japan

1997: Dr. Miyauchi published a paper warning a risk of overdiagnosis of thyroid cancer in screening.

2003: Kuma Hospital started a trial of active surveillance for low risk papillary thyroid carcinoma.

2008: Shimura proposed a tentative guideline for management of thyroid nodules found in sonographic screening in the first edition of guidebook for thyroid ultrasonography by Japan Association of Breast and Thyroid Sonology (JABTS).

2011: The Japan Society of Ultrasonics in Medicine published the ultrasound diagnostic criteria for thyroid nodule.

2012: JABTS published the guideline for management of thyroid nodules in the second edition of guidebook.

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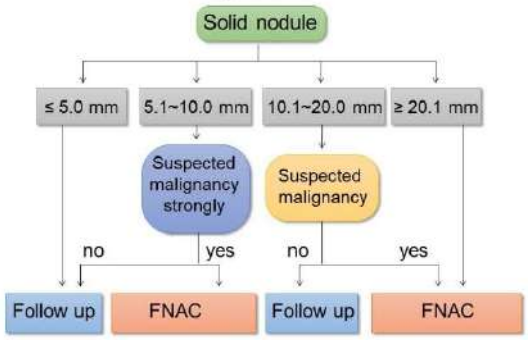
Guideline for thyroid nodule management published by JABTS



Suzuki S: Clin Oncol 28: 263-271, 2016

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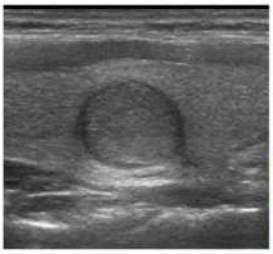
Case 1



- ✓ Regular shape
- ✓ Well-defined and smooth margin
- ✓ Isoechoic
- ✓ Homogeneous echo pattern
- ✓ No high echo spot
- ✓ Regular marginal hypoechoic zone

Typical examples of diagnosis:

Follicular adenoma

Cribriform variant papillary carcinoma

Diameter (mm)	≤ 5.0	5.1-10.0	10.1-20.0	≥ 20.1
FNAC	No	No	No	Yes

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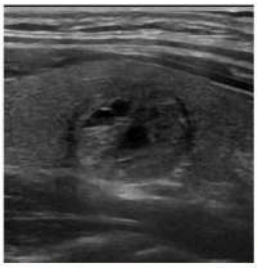
Case 2



- ✓ Regular shape
- ✓ Smooth but ill-defined margin
- ✓ Isoechoic
- ✓ Heterogeneous echo pattern
- ✓ No high echo spot
- ✓ Irregular marginal hypoechoic zone
- ✓ Spongiform pattern

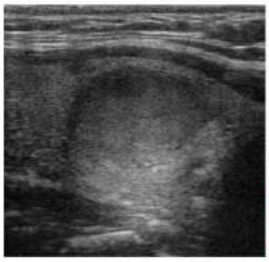
A typical example of diagnosis:

Adenomatous nodule

Diameter (mm)	≤ 5.0	5.1-10.0	10.1-20.0	≥ 20.1
FNAC	No	No	No	Yes

6OLGH

Case 3



- ✓ Irregular shape
- ✓ Well-defined but jagged margin
- ✓ Isoechoic
- ✓ Homogeneous echo pattern
- ✓ No high echo spot
- ✓ Irregular marginal hypoechoic zone

Typical examples of diagnosis:

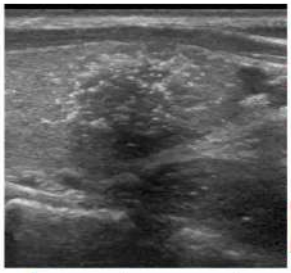
Follicular carcinoma

Papillary carcinoma

Diameter (mm)	≤ 5.0	5.1-10.0	10.1-20.0	≥ 20.1
FNAC	No	No	Yes	Yes

6OLGH

Case 4



- ✓ Irregular shape
- ✓ Ill-defined and Jagged margin
- ✓ Hypoechoic
- ✓ Heterogeneous echo pattern
- ✓ Fine high echo spots
- ✓ No marginal hypoechoic zone

A typical example of diagnosis:

Papillary carcinoma with ETE and nodal metastasis

Diameter (mm)	≤ 5.0	5.1-10.0	10.1-20.0	≥ 20.1
FNAC	No	Yes	Yes	Yes

6OLGH

Implementation rate of FNAC (Comparison with Korea)

Size of nodule (mm)	Fukushima First round (n=1,489)	Fukushima Second round (n=1,517)	Korea 2009 (n=90) *	Korea 2014 (n=101) *
≤5.0	1.6%	0%	94.4%	53.5%
5.1-10.0	20.1%	7.3%	100%	80.2%
10.1-20.0	63.2%	26.0%	-	-
≥20	87.7%	50.0%	-	-

* Yong Sang Lee, Hong-Seok Chang and Cheong Soo Park. Endocrine J 63:515-521, 2016

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Conclusions

- ✓ The protocol using with Japanese guidelines was able to reduce unnecessary FNAC, especially for nodules smaller than 10.1mm.
- ✓ In addition, this strategy was able to avoid detection failure of thyroid carcinoma more than 10mm in diameter.

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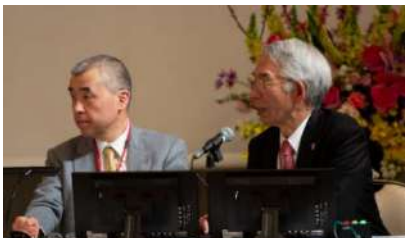

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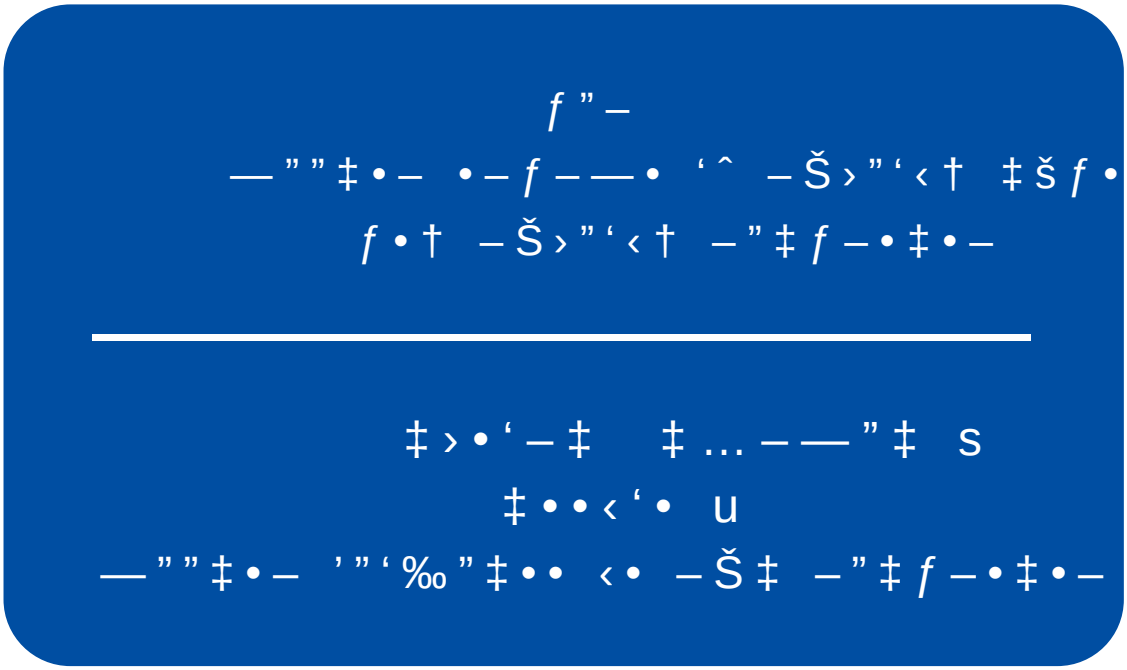

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Surgical treatment of pediatr[ic thyroid cancer in Japan]

SUZUKI Shinichi MD PhD
Professor and Chair, Department of Thyroid and Endocrinology, Fukushima Medical University School of Medicine

After the Fukushima NPP acc[illegible]
Great East Japan Earthquak[illegible]
thyroid ultrasound surve[illegible]
for people aged years or yo[illegible]
disaster. We would like to [illegible]
found in this survey.
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cancers among TUE particip[illegible]
department (Slide) shows [illegible]
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and years, respectively [illegible]
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thyroid carcinomas (PTCs) [illegible]
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differentiated thyroid car[illegible]
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smaller were invasive no[illegible]
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found in and of all [illegible]
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the remaining cases [illegible]
thyroidectomy.
Both high risk cases and [illegible]
which active surveillance [illegible]
were very few. Almost all of [illegible]
PTCs, whereas solid variant [illegible]
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were performed as hemi[illegible]
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except for high risk cases [illegible]

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in Japan. [illegible]
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people, for whom adherence to [illegible]
regimen would be burdensome [illegible]
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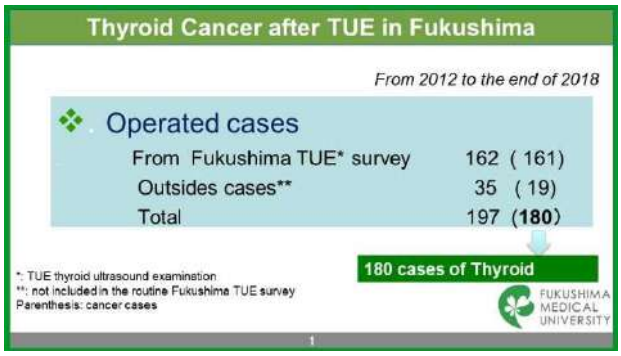

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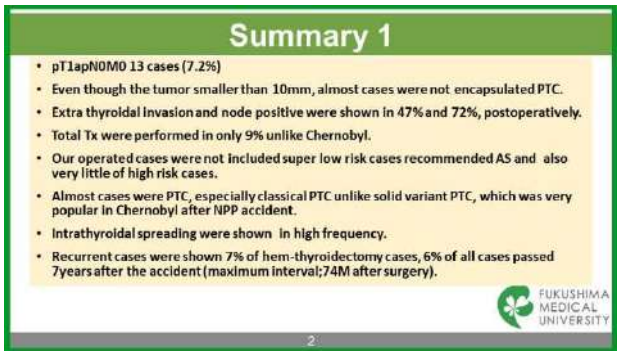

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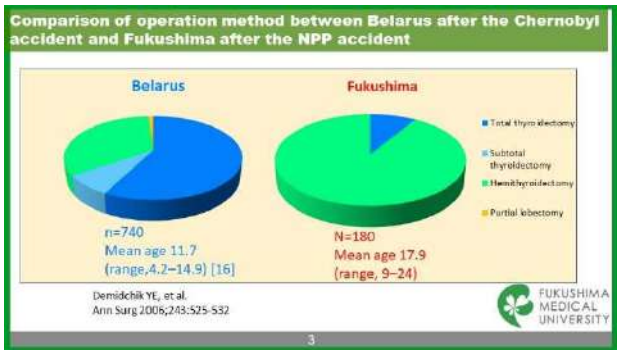

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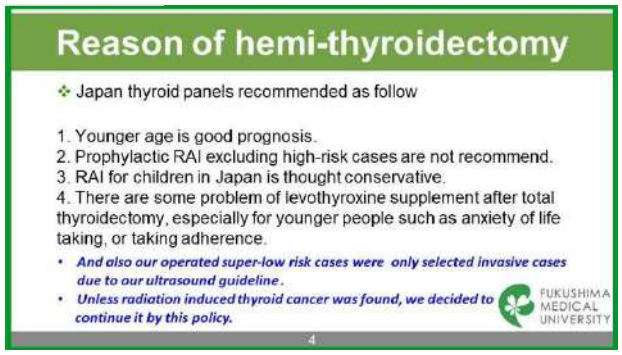

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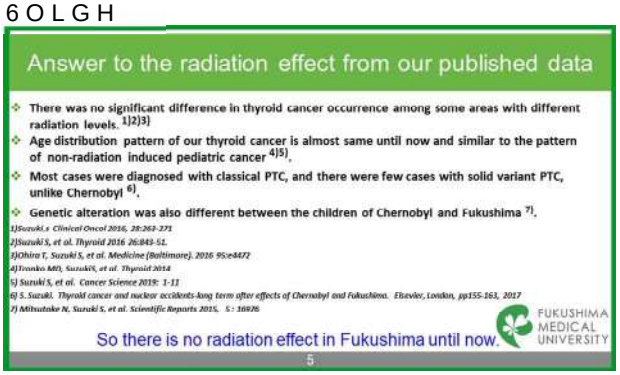

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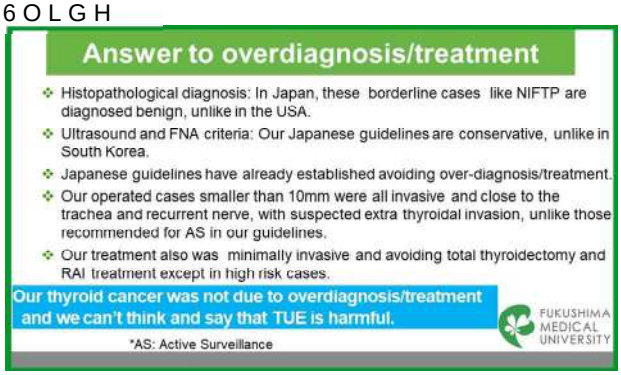

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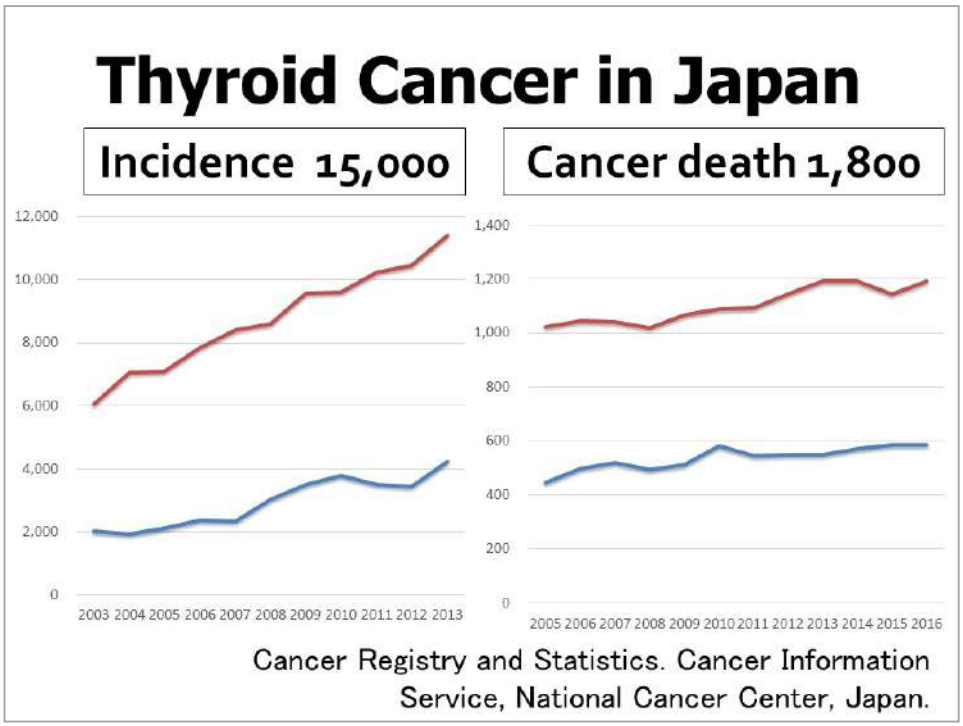

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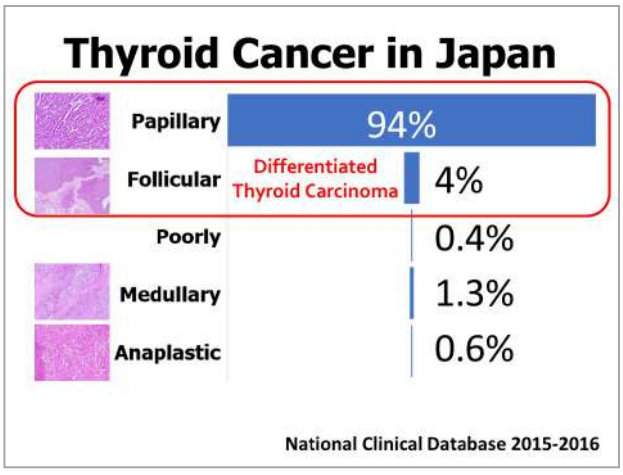

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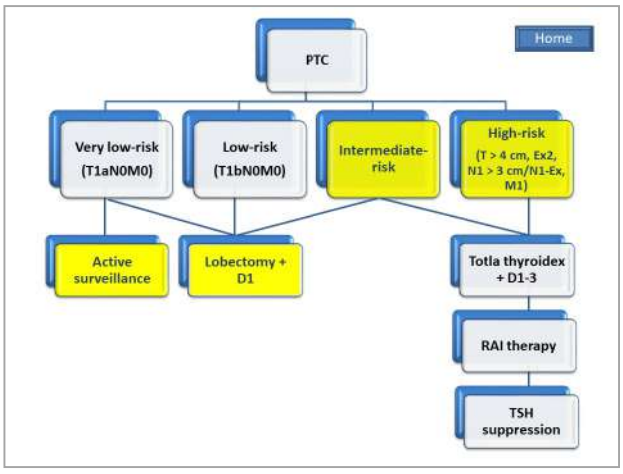

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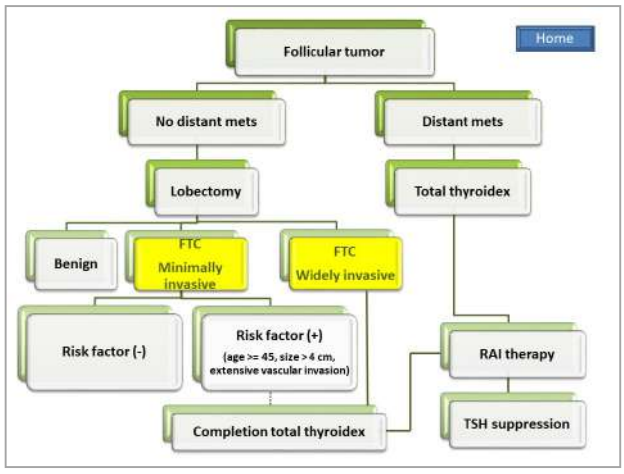

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Low-risk PMC & High-risk PMC

High-risk PMC: having one or more of the followings
- Lymph node metastases or distant metastases (very rare)
- Extrathyroid extension
- High grade cytology (very rare)
- Located near the RLN or attaching the trachea

Low-risk PMC: having none of the above features
- Did not exclude patients with family history for PTC
- patients with multiple foci

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Observation without Immediate Surgery (Active Surveillance) for Low-risk PMC

Miyauchi proposed an observation without immediate surgery clinical trial at a doctors' meeting of Kuma Hospital in 1993.

1. Made diagnosis with US-guided FNA (PPV is 98%).
2. For high-risk PMCs, we recommended surgery.
3. For low-risk PMCs, we proposed observation and surgery, and patients chose one of them.
4. Followed patients who chose observation with US 6 months later and once a year thereafter.
5. Recommended surgery if the tumor showed increase in size by 3 mm or more, or if novel lymph node metastases appeared.

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Unfavorable events following active surveillance and immediate surgery

Unfavorable events	Intended Management: Active surveillance 1,179 pts	Intended Management: Immediate surgery 974 pts	*p*-value
Temporary VCP (%)	7 (0.6%)	40 (4.1%)	<0.0001
Permanent VCP (%)	0 (0%)	2 (0.2%)	n.s.
Temporary Hypo-PT (%)	33 (2.8%)	163 (16.7%)	<0.0001
Permanent Hypo-PT (%)	1 (0.08%)	16 (1.6%)	<0.0001
On L-thyroxine (%)	244 (20.7%)	644 (66.1%)	<0.0001
Surgical Scar	94 (8.0%)	974 (100%)	<0.0001

Oda H, Miyauchi A, et al. Thyroid. 26:150-155, 2016

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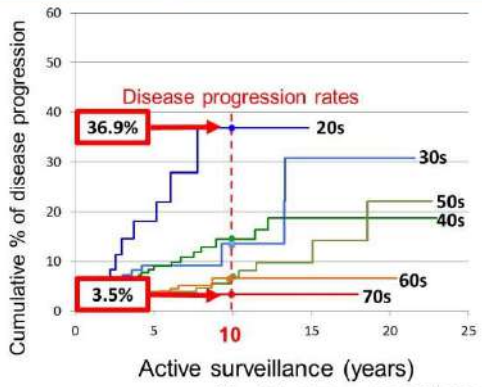
Disease progression rate at 10 year AS



Miyauchi A, et al: Surgery. 2018;163(1):48-52.

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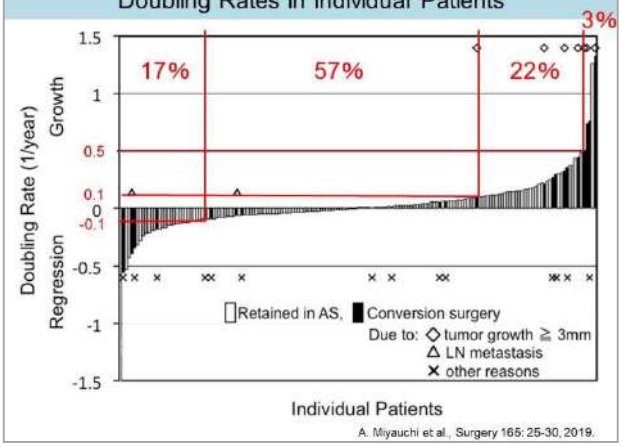
Doubling Rates in Individual Patients



A. Miyauchi et al., Surgery 165: 25-30, 2019.

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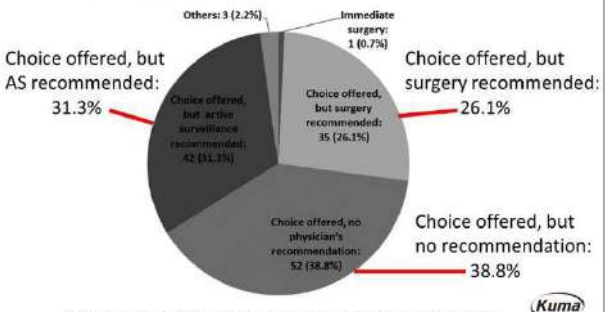
Current Management Policy for Low-risk PMCs among JAES Member Institutes



Sugitani I, Ito Y, Miyauchi A et al., Thyroid. Epub ahead of printing, 2019.

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Well-differentiated thyroid cancer (WDTC)

- Most common thyroid cancer world wide (papillary thyroid cancer [PTC] and follicular thyroid cancer [FTC])
- PTC and FTC make up 95% of thyroid cancers
- Incidence of thyroid cancer is increasing worldwide
- In a review of 60 published studies, thyroid cancer increased in almost all the studies

Systematic Review of Trends in the Incidence Rates of Thyroid Cancer
Joseph J. Wiltshire[1], Thomas M. Drake[1], Lesley Uttley[2] and Sabapathy P. Balasubramanian[3]
Thyroid 2016

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We do not know which of the 3 primary treatment modalities is necessary to achieve the excellent prognosis

- Movement internationally to do less
- Smaller operations (or no operations at all)
- Take out only part of the thyroid gland
- Take out fewer lymph nodes
- Avoid radioactive iodine if possible

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It is difficult to know which treatments are not necessary without eliminating treatments and following patients for many years

- Japan has pioneered active surveillance of papillary microcarcinomas
- US has been slow to adopt active surveillance but ATA guidelines have been enthusiastic about doing smaller operations and giving fewer patients radioactive iodine

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2015 American Thyroid Association Guidelines

- Encourage fewer patients to have total thyroidectomy
- As a result, fewer patients will be able to receive radioactive iodine
- How does the rest of the world view these changes?

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Despite ATA Guidelines suggesting smaller operations, many US patients still have total thyroidectomies

- Study of US SEER database between 2000 and 2014, 44,537 patients had surgery for papillary thyroid cancer
- Proportion having total thyroidectomy increased from 78.16% in 2000 to 85.67% in 2014
- Proportion having thyroid lobectomy decreased from 16.62% in 2000 to 11.41% in 2014

Changes in total thyroidectomy versus thyroid lobectomy for papillary thyroid cancer during the past 15 years
Benjamin C. James, MD, MS[a,c], Lava Timsina, PhD[b], Ryan Graham, BS[c], Peter Angelos, MD, PhD, FACS[c], David A. Haggstrom, MD, MAS[c,d]
Surgery 2019

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Conclusions

- Uniformly, thyroid cancer treatment guidelines encourage lobectomy rather than total thyroidectomy
- For tumors between 1 and 4 cm, lobectomy appears adequate treatment, but "patient preference" is important
- Many patients in US and elsewhere in the world continue to have total thyroidectomy even when the data does not suggest that it is necessary
- There is often a significant lag from recommendations to clinical practice
- Many surgeons and patients appear to still believe that more extensive operations lead to better outcomes

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Advances in managing psychological effects of disasters

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The Mental Health Costs of Disasters

- PTSD
- Depression*
- Anxiety*
- Grief
- Substance Abuse
- Suicide

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Predictors

- Direct exposure
- Months of work
- Fear of radiation (including reproduction)
- Economic hardship
- Sleep problems
- Poor social support
- Resettlement issues

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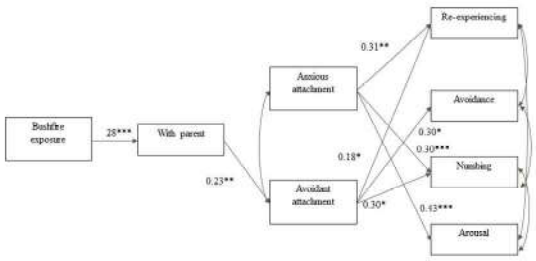

Bryant et al., 2017, *Psychol Med*

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Network results

Important patterns	Depression	PTSD
Sending ties to others	↓	↓
Receiving ties from others	↓	↓
Selection/Contagion???	↑	⊘
Brokerage positions???	⊘	↑
Indirect reciprocity (3-cycle)???	⊘	↓

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Problem Management Plus (PM+)

- For whom
  - Adults, **transdiagnostic (stress, depression, anxiety)**
- What
  - Problem-solving counselling (**problem management**) **plus** behavioural strategies stress management, behavioural activation, strengthening social supports
- Formats
  - 5 sessions face-to-face

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Digital Solutions

- Outreach can be achieved with digital programs
- Apps available with proven efficacy to reduce common mental health problems
- Allows anonymity, self-paced, low-cost
- Meta-analyses indicate these can be as effective as face-to-face programs

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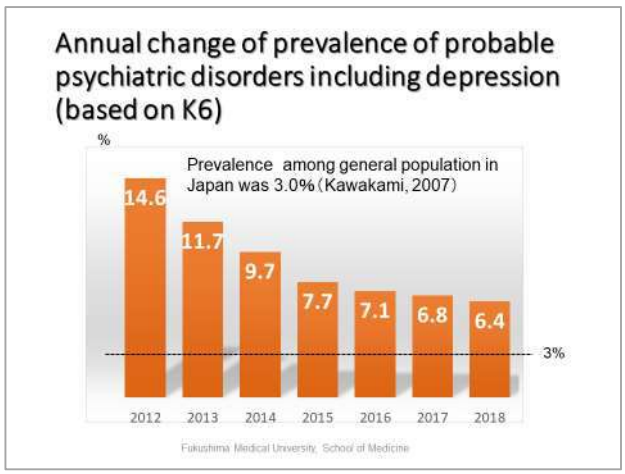

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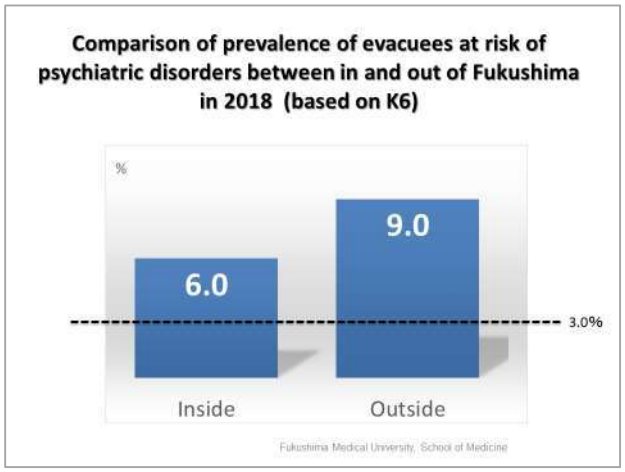

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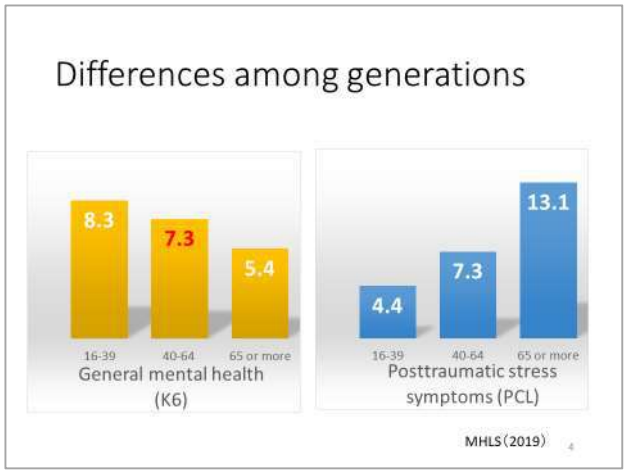

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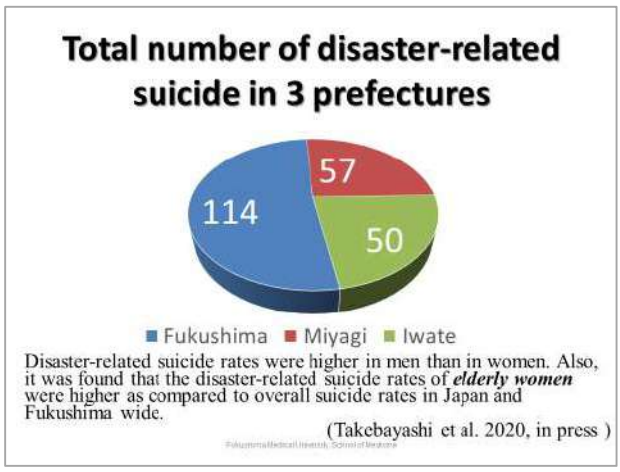

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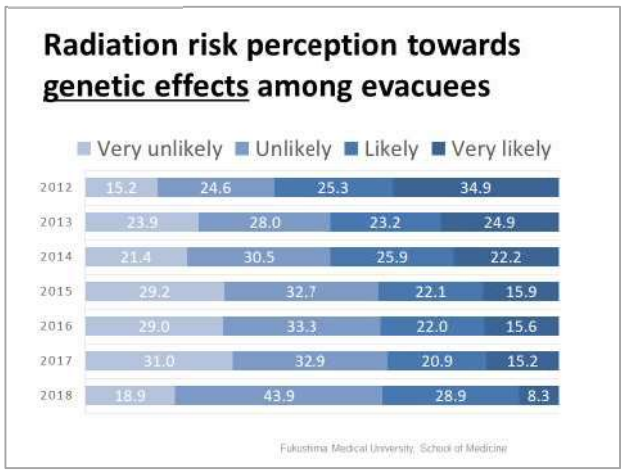

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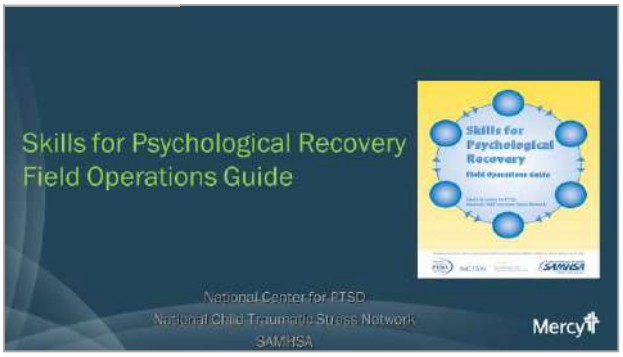

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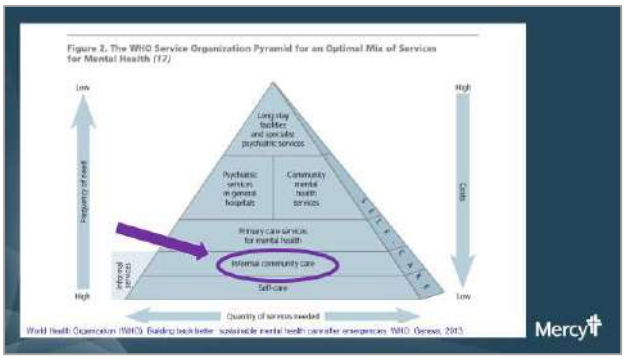

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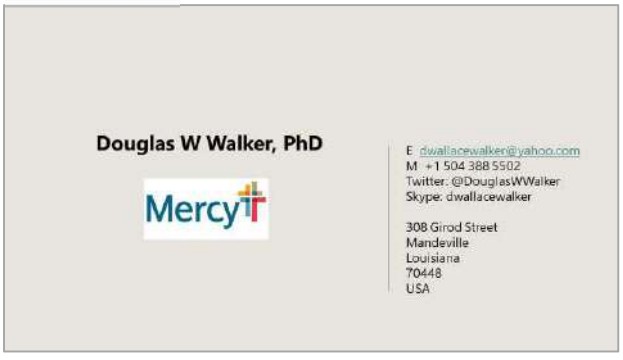

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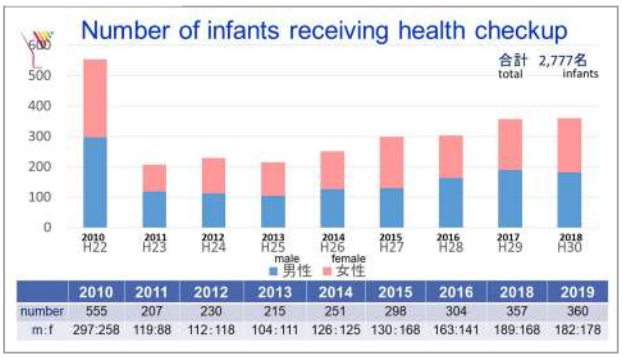

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	H22	H23	H24	H25	H26	H27	H28	H29	H30
身長(cm)	96.2	97	96.9	96.9	96.3	96.1	96.2	96.3	96.7
体重(kg)	14.6	15.1	14.8	14.8	14.6	14.8	14.8	14.7	14.8

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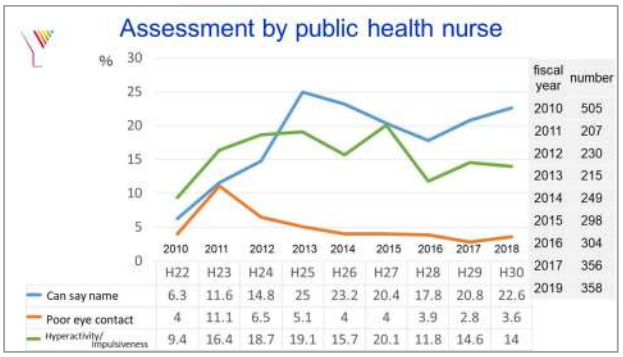

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2011	207
2012	230
2013	215
2014	249
2015	298
2016	304
2017	356
2019	358

	H22	H23	H24	H25	H26	H27	H28	H29	H30
Can say name	6.3	11.6	14.8	25	23.2	20.4	17.8	20.8	22.6
Poor eye contact	4	11.1	6.5	5.1	4	4	3.9	2.8	3.6
Hyperactivity/ Impulsiveness	9.4	16.4	18.7	19.1	15.7	20.1	11.8	14.6	14

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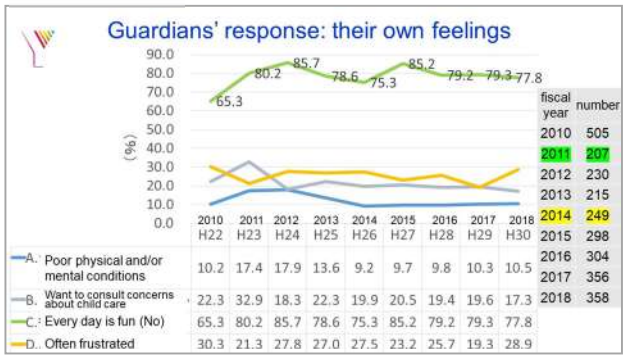

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2018	358

	H22	H23	H24	H25	H26	H27	H28	H29	H30
A. Poor physical and/or mental conditions	10.2	17.4	17.9	13.6	9.2	9.7	9.8	10.3	10.5
B. Want to consult concerns about child care	22.3	32.9	18.3	22.3	19.9	20.5	19.4	19.6	17.3
C. Every day is fun (No)	65.3	80.2	85.7	78.6	75.3	85.2	79.2	79.3	77.8
D. Often frustrated	30.3	21.3	27.8	27.0	27.5	23.2	25.7	19.3	28.9

6OLGH

Are there relations between guardians' mental state and support they receive?

- Guardians of the 2nd graders of elementary school……
- The frequency of evacuation is correlated with guardians' high K6 score (strong depression and anxiety)
- "Family support (insufficient)" is correlated with "general health", "vitality", "social functioning", "role (emotional)", "mental health"

- Guardians of the 5th graders at elementary school …
- "Family support (insufficient)" is correlated with "social functioning"
- "Support from teachers (insufficient)" is correlated with "role (physical)"
- "Support from friends of caregiver (mother) (insufficient) " is correlated with "mental health"

6OLGH

Condition of parents and their children (2nd graders, 5th graders)

- 2nd graders
  - Children: Overall scores do not differ significantly from the Japanese average
    - Children in high needs for "emotion" are slightly higher than general
    - Problems seen at 3-1/2-year-old health checkups are becoming less noticeable?
  - Guardians: High support needs for "sense of well-being" and "mental health"
    - Possibility of having continuous stress from the time their children were smaller
- 5th graders
  - Children: Compared with the national average, support needs may be higher for "hyperactivity" and "peer relationship"
  - Guardians: High support needs for "mental health"

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6OLGH

- March 11
  - 14:46 Great East Japan Earthquake strikes
  - 15:50 7-meter tsunami strikes Soma City
  - 16:36 Declaration of Nuclear Emergency Situation
  - 21:23 Evacuation order issued to residents within 3-km radius
- March 12
  - 5:44 Evacuation order issued to residents within 10-km radius
  - 15:36 Hydrogen explosion from Reactor 1
  - 18:25 Evacuation order issued to residents within 20-km radius
- March 13
  - 8:20 TEPCO notifies the government of "emergency situation"
- March 14
  - 11:01 Hydrogen explosion from Reactor 3
- March 15
  - 6:00 Hydrogen explosion from Reactor 4
  - 6:10 Sound of an explosion from Reactor 2
  - The rain causes a surge in radiation dose in Fukushima City (maximum 25μSv)

Planned evacuation zone and Emergency Evacuation Preparation Zone
計画的避難区域と緊急時避難準備区域

From iij1.com (April 22, 2012)

6OLGH

Learning from My Experience as a Public Health Nurse

- Need to build a system for discussing with related organizations on how to collaborate at a time of a disaster and to respond to emergency situation
- The elderly, disabled, and others who are particularly vulnerable to disaster have difficulty obtaining information issued by the government, and require the support of neighbors
- Anxiety about radiation is particularly felt by mothers with children. Need to establish a system for consultation as soon as possible. (Coordinating with expert organizations is essential: Radiation Class for Mothers and Children)
- Important to provide psychological care for workers supporting affected people (those who are directly exposed to complaints and expressions of anger from affected people)

6OLGH

Fukushima Center for Disaster Mental Health (FCDMH): Overview

The center was set up in February 2012.
It began with the core centers(headquarters), six regional centers, and three branch offices. In light of the actual conditions of affected people whom the center supports, it is now operating with the core centers, four regional centers, and two branch offices.

6OLGH

Interview Survey of 13 Local Municipalities (July 2019)

6OLGH

Results from Visits to Municipalities

Residents' housing, etc.

- There are differences in residents' return to their hometowns, depending on when the evacuation order was lifted
- Many of the returnees are elderly and people living alone
- Recently, there are residents who complain of PTSD symptoms and other anxieties.
- There are people relocating in the municipalities as a result of policies to promote inflow of child-rearing generation and to create and rebuild industry
- As a result of the restoration of municipal government functions and consolidation of staff members, municipal offices outside of towns and villages have been downsized or abolished. Municipal government has become less accessible to residents.

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From the Results of Visits to Municipalities

[Issues That Need to be Considered in the Future]

- Support for mothers with children and for adolescents
- Support for those evacuating to outside municipalities
- Support for resuming home-care services for the disabled and the elderly in areas where the evacuation order was lifted. Support for development of social resources.
- Consultation and mental health care for workers supporting residents
- Countermeasures to prevent alcohol abuse and suicides

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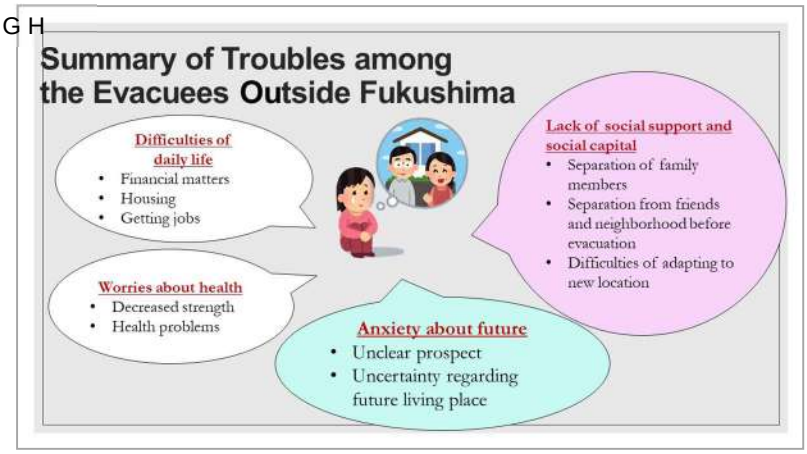

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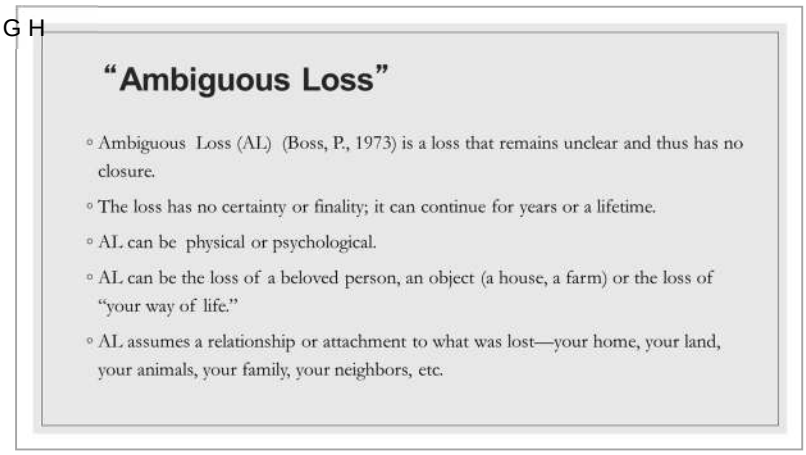

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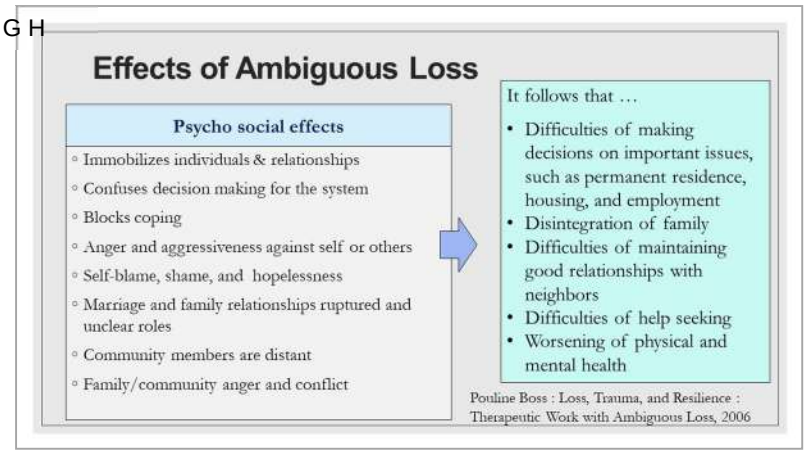

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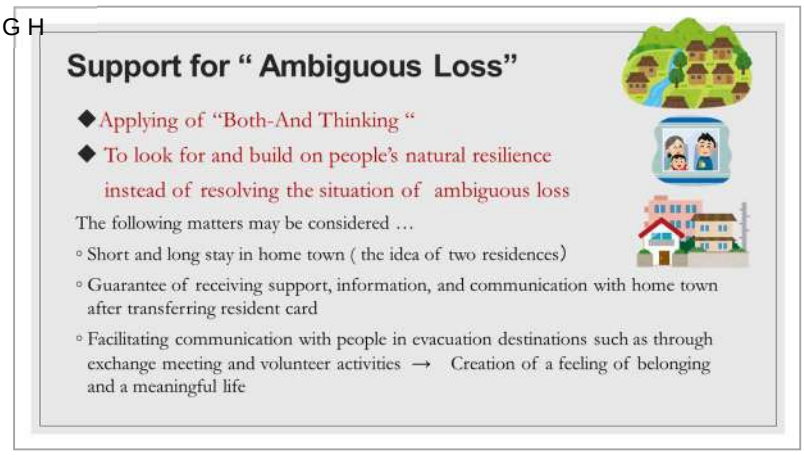

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LQGXVWULDO UHFRYHU\ :H ZLOO FRQWLQXH WR ZRUN IRU WKH
DVN HYHU\RQH IRU WKHLU XQGHUVWDQGLQJ DQG VXSSRUW RI R

)LQDOO\ , ZRXOG OLNH WR FRQFOXGH E\ H[SUHVVLQJ P\ VL
FRQWULEXWHG WR DQG FRRSHUDWHG ZLWK WKLV ,QWHUQDWLR

3KRWRHUDOO

9HQ 7KH &HOHFWF

(QWU

1DYL、 ' .HQQHWK

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7KHPH RI WKL

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6LPXOWDQHRXV LQWHUSUHWDWLRQ -DS
ZDV SURYLGHG

'$< ,QWUR 2YHUYLHZ RI WKH)XNXVKLPD)+0(S

'$< 3D &XUUHQW VWDWXV RI WK\URLG S
6HVVLRQ !

'$< $0 3D &XUUHQW VWD\PLQDWLRQ DQG \S
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'$< 30 3DUW 0HQWDO KHDOWK RI)X ZKDW VKRXOG S
.H\QRWH /HFWXUH 6HVVLRQ !

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FUKUSHIMA MEDICAL UNIV.
The 2nd International Symposium of the Radiation Medical Science Center for the Fukushima Health Management Survey
Build Back Better, Together.
Fukushima Health Management Survey updated, focusing on thyroid and mental health
Simultaneous Japanese-English Interpretation
Admission free
February 2-3, 2020
Nanko Park (Shirakawa City)
VENUE
The Celecton Fukushima 3F "Adatara"
13-73 Ota-machi, Fukushima 960-8068
INTENDED AUDIENCE
Fukushima residents, health care/medical professionals, students, public employees and anybody interested in the theme of this symposium (pre-registration required)
Pre-registration Deadline
January 26th, 2020
Please visit our website for pre-registration and the detailed program
URL
http://kenko-kanri.jp/en/news/2nd_intl_symposium.html/
MAP
N
Toho Bank
To Sendai
JR Fukushima Sta.
The Celecton Fukushima
West exit
East exit
Ito-Yokado
Fukushima Minpo
Azuma crossover
To Tokyo
1 minute walk from the west exit of JR Fukushima Station to the venue
〈Organizer〉 Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University
〈Nominal Support〉 Fukushima Prefecture, Hiroshima University, Nagasaki University, Fukushima University, The University of Aizu
〈Contact〉
Office of International Cooperation, Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University
Phone: +81 24-581-5454 / E-mail: kenkani@fmu.ac.jp

5HVXOWV RI 4XHVWLRQQDLUH

:H DVNHG DOO RI WKH YLVLWRUV WR SDUWLFLSDWH LQ WKH VX
SHRSOH DQVZHUHG RYHU WKH FRXUVH RI WZR GD\V 7KHLU U
:H ZRXOG OLNH WR WKDQN HYHU\RQH IRU WKHLU FRRSHUDWLRQ

%UHDNGRZQ RI UHVSRQGHQWV

$JH			/RFDWLRQ RI UHVLGHQFH2FFXSDWLRQ					
*URXS		1R 5DWLR	*URXS		1R 5DWLR		*URXS	1R
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V			2XW RI)XNXVKLPD		7HDFKHU			
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0DLQ UHVXOWV RI WDEXODWLRQ

,WHP						7RWDO
2YHUDOO LPSUHVVLRQ	9HU\ JRRG 1R UDWLR		$YHUDJH		9HU\ EDG	
7KHPH VHOHFWLRQ	9HU\ JRRG 1R UDWLR		$YHUDJH		9HU\ EDG	
&RQFLVHQHVV RI SUHVHQWDWLRQV	9HU\ JRRG 1R UDWLR		$YHUDJH		9HU\ EDG	

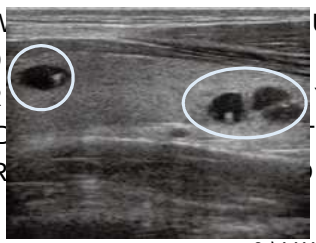
([SODQDWLRQ RQ WKH WH

3DUW&XUHQW VWDWXV RI WK\URLG H[DPLQDWLRQ DQG WK\UR

FRQIRXQGLQJ IDFWRUV	3 3 3	$ FRQIRXQGLQJ IDFWRU LV D YDULDEOH WKDW DIIHFWV DQD SHUVRPHQD $ DQG % ZKHUHE\ $ DQG % DSSHDU WR KDYH D GRHV QRW H[LVW
HFRORJLFDO IDQODF\	3 3	(FRORJLFDO IDOODF\ LV IDXOW\ UHDVRQLQJ LQ HFRORJLFDO REVHUYHG DW D JURXS OHYHO DUH FRQVLGHUHG DSSOLFDE
816&($5	3 3	$FURQ\P RI WKH 8QLWHG 1DWLRQV 6FLHQWLILF &RPPLWWHH 7KH FRPPLWWHH HYDOXDWHV WKH HIIHFWV RI LRQL]LQJ UDG IURP DQ LPSDUWLDO DQG VFLHQWLILF VWDQGSRLQW DQG UH $VVHPEO\ HYHU\ \HDU
$<$ JHQHUDWLRQ	3 3 3	$<$ LV DQ DFURQ\P RI DGROHVFHQW DQG \RXQJ DGXOWV DQ JHQHUDWLRQ IURP WR \HDUV ROG RU WR GHSHQG JHQHUDWLRQ PD\ GHYHORS ERWK SHGLDWULF DQG DGXOW F DQG VXSSRUW DV LW LV D WLPH RI D PDMRU OLIH VWDJH FK
ILQH QHHGOH DVSLUDWLRQ F\WRORJ\ )1$&	3 3	)LQH QHHGOH DVSLUDWLRQ F\WRORJ\ LV D PHGLFDO SURFHG H[WUDFWHG E\ LQVHUWLQJ D ILQH QHHGOH DWWDFKHG WKU VDPSOLQJ RI WLVVXHV PRUH DFFXUDWH GLDJQRVLV RI EHQ
QRGXOH F\VW	3 3 3 3	6HH H[SODQDWLRQ EHORZ
$3&	3	7KH $3& JHQH FRQWUROV GLIIHUHQWLDWLRQ DQG SUROLIHU PXWDWLRQ WR WKLV JHQH FDXVHV IDPLOLDO DGHQRPDWRXV FDQFHU WRR
5(7 37&	3 3	$ W\SH RI JHQH PXWDWLRQV LQGXFHG E\ UHDUUDQJHPHQW DQRWKHU JHQH 7KLV PXWDWLRQ ZDV KLJKO\ SUHYDOHQW L &KHUQRE\O
KHPLWK\URLGHFWRP\ ORHFWRP\	3 3 3	7KH WK\URLG JODQG LV D EXWWHUIO\ VKDSHG RUJDQ ZLWK SDUW FDOOHG WKH LVWKPXV +HPLWK\URLGHFWRP\ RU WK\U HLWKHU OREH ,I WKH HQWLUH WK\URLG JODQG LV UHPRYHG VLQJOH OREH DQG WKH LVWKPXV DUH UHPRYHG LW LV FDO
5, DEODWLRQ	3	5, DEODWLRQ RU UDGLRLRGLQH DEODWLRQ WKHUDS\ LV DQ WK\URLGHFWRP\ WR GHVWUR\ UHVLGXDO WK\URLG WLVVXHV
/1	3	$EEUHYLDWLRQ RI O\PSK QRGH
OHYRWK\UR[LQH	3	/ WK\UR[LQH RU OHYRWK\UR[LQH LV D WK\URLG KRUPRQH PHWDEROLVP DQG LQ FKLOGUHQ SURPRWHV JURZWK ,W LV K\SRWK\URLGLVP
78(	3	$FURQ\P IRU 7K\URLG 8OWUDVRXQG ([DPLQDWLRQ 7KLV DFU WK\URLG H[DPLQDWLRQV FRQGXFWHG LQ WKH 7K\URLG 6XUY 0DQDJHPHQW 6XUYH\
WK\URWURSLQ	3	7K\URWURSLQ DOVR DEEUHYLDWHG DV 76+ LV D WK\URLG WK\URLG JURZWK DQG IXQFWLRQ

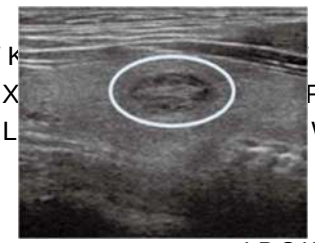
” &\VWV DQG QRGXOHV

$ F\VW LV D VDF OLNH VWUXFWXUH ILOOHG ZLW URLG F LQ KHDOWK\ LQGLYLGXDOV &\VWV ZLWK QR FHO QRW OH F\VWV WKDW PD\ IUHTXHQWO\ FKDQJH LQ VL]H R YLRXV VHOGRP IRXQG LQ EDELHV DQG LQIDQWV EXW D XHQWO VHFRQGDU\ VFKRO DJH ,Q WKH)+06 F\VWV R OHU FRQILUPDWRU\ H[DPLQDWLRQ QRW QHFHVVDU\ PP R % FRQILUPDWRU\ H[DPLQDWLRQ UHFRPPHQGHG



&\VW

$ QRGXOH LV FDXVHG E\ GLIIHUHQWLDO JURZWK HOOV : PRVW QRGXOHV DUH EHQLJQ ,Q WKH)+06 QRGX RU VPDO DQG QRGXOHV RI PP RU ODUJHU DUH FODVVL WK UHFR GHVFULEHG DERYH IRU $ DQG % F\VWV



1RGXOH

” 6FKHGXOH DQG LQWHQGHG JURXSV IRU WK\URLG H[DPLQDWLRQ

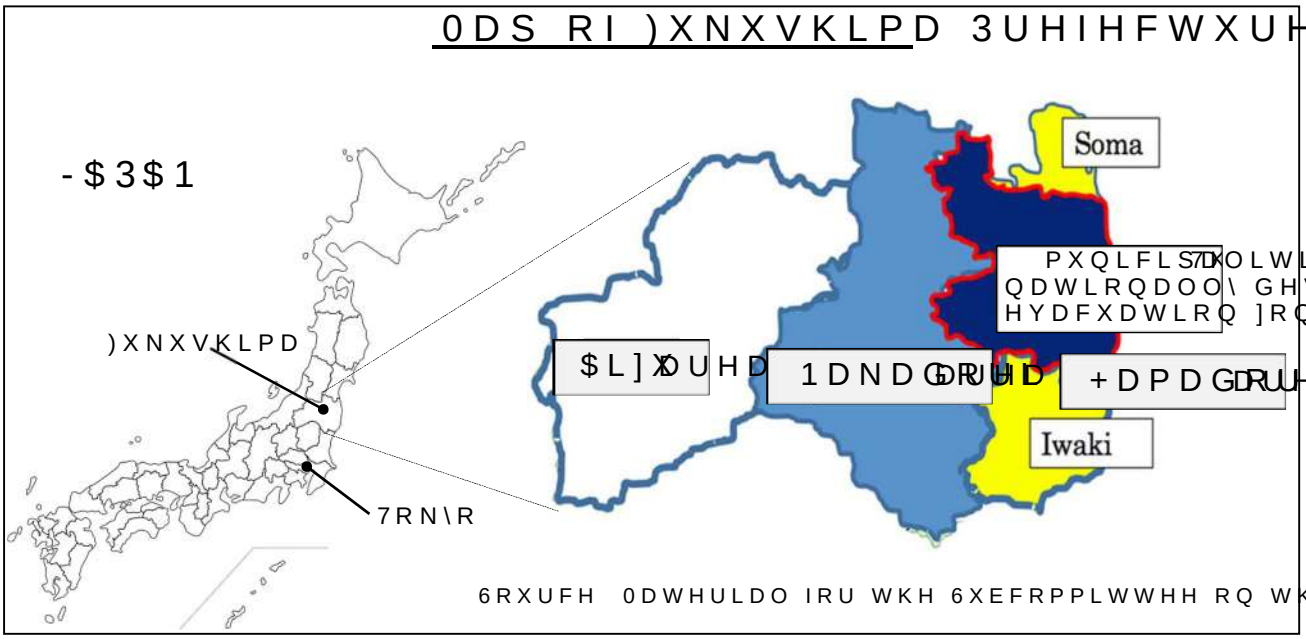
		3HULRG	7DUJHW JURXS
VW URXQG FRPSOHWHG	3UHOLPLQDU\ VXUYH\ DWR HVWDEOLVK EDVHOLQH WK\URLG JODQG FRQGLWLRQV	EDVHOLQH 2FWREHU 0DUFK	5HVLGHQWV RI)XNXVKLPD 3UHIHFW \HDUV RU \RXQJHU DV RI 0DUFK ERUQ EHWZHHQ $SU DQG $SU ´a UHVLGHQWV
QG URXQG UG URXQG FRPSOHWHG	)XOO 6FDOH 6XUYH\ QG ([DPLQDWLRQ)XOO 6FDOH 6XUYH\ UG ([DPLQDWLRQ DW WKRVH FRPSDULVRQ ZLWK 3UHOLPLQDU\ %DVHOLQH 6XUYH\ UHVXOWV	$SULO 0DUFK	,Q DGGLWLRQ WR WKH UHVLGHQW UHVLGHQWV RI)XNXVKLPD 3UHIHF ERUQ EHWZHHQ $SU DQG $S ´WRWDO a µ UHVLGHQWV Ð7KHVH UHVLGHQWV FDQ KDYH WK H[DPLQDWLRQV HYHU\ \HDUV DIW WKH\ FDQ WDNH H[DPLQDWLRQ D PXOWLSOHV RI DJH HWF
WK URXQG	)XOO 6FDOH 6XUYH\ WK ([DPLQDWLRQ	$SULO	

6RXUFH 0DWHULDO IRU WKH 2YHUVLJKW &RPPLWWHH PHHWLQJ RQ 2FW

([SODQDWLRQ RQ WKH WH

3DUW ß 0HQWDO KHDOWK RI)XNXVKLPD SHRSOH DQG FDUH

376'	3 3	376' SRVW WUDXPDWLF VWUHVV GLVRUGHU LV D PHQWDO I WUDXPDWLF HYHQW LQ ZKLFK LQGLYLGXDOV VXIIHU IURP UH WUDXPD LQ VXFK IRUPV DV IODVKEDFNV QLJKWPDUHV DQG
LQWHUYHQWLRQ	3 3	,QWHUYHQWLRQ LV D FRPELQDWLRQ RU VHULHV RI SURJUDP GHOLYHUHG E\ SURIHVVLRQDOV RU WUDLQHG QRQ SURIHVV FRPPXQLW\ WR FRSH ZLWK RU UHFRYHU IURP D FULVLV VLW
.	3 3 3	. RU WKH .HVVOHU 3V\FKRORJLFDO 'LVWUHVV 6FDOH LV D FRPSULVHG RI TXHVWLRQV DERXW SV\FKRORJLFDO GLVWU VHULRXV PHQWDO LOOQHVV LQ WKH JHQHUDO SRSXODWLRQ
3&/	3	$EEUHYLDWLRQ RI 376' &KHFN /LVW 7KLV LV D VHOI UHSRU PRQLWRU WKH RQVHW RI 376' V\PSWRPV



6RXUFH 0DWHULDO IRU WKH 6XEFRPPLWWHH RQ WKH (YDOX

1DYLJDWRU 1RWHV

7LPH DQG $JDLQ

.HQQHWK (12//(7
3URIHVVRU 6FKRRO RI 0HGLFL
0HGLFLQH 'HSDUWPHQW RI %OR
DQG 7UDQVSODQWDWLRQ ,PPXQR
0HGLFDO 6FLHQFH &HQWHU IRU
+HDOWK 0DQDJHPHQW 6XUYH\
)XMVKLPD 0HGLFDO 8QLYHUVLW\

+RZ PXFK WLPH JRHV LQWR DQ LQWHUQDWLRQDO V\PSRVL
0DQDJHPHQW 6XUYH\¶V 2IILFH RI ,QWHUQDWLRQDO &RRSHUDWLR
5HIOHFWLQJ PRUH GHHSO\ RXU WKUHH VSHDNHUV IURP RYHUVH
H[SHULHQFH WR XV DW H[DFWO\ D WLPH ZKHQ WKHLU FRXQWUL
FRPSHWLQJ QHHGV IRU WKHLU H[SHUWLVH

1HZV UHSRUWV DERXW FRURQD YLUXV SURPSWHG XV WR PD
DYDLODEOH DW WKH FRQIHUHQFH YHQXH 7KLV JHVWXUH SUHF
GHFODUDWLRQ RI D SDQGHPLF EXW ZDV FRQVLVWHQW ZLWK -DS
-DSDQ¶V HDUWKTXDNH WVXQDPL DQG QXFOHDU FULVLV WK
OLYH)URP XQFRPPRQ HYHQWV FRPPRQ OHVVRQV PD\ HPHUJH
RXWEUHDNV LQ FURZGHG HYDFXDWLRQ IDFLOLWLHV &RRSHUDW
WR PLQG WKH WKHPH RI RXU ,QWHUQDWLRQDO 6\PSRVLXP ³)U
WR WKH :RUOG ´

7KH SURPLVH RI QXFOHDU SRZHU SOD\HG ZHOO RQ)XNXVKL
JHQHUDWLRQV RI RXU KXPDQ KLVWRU\ 7KHQ DEUXSWO\ LW GL
)XNXVKLPD 'DLFKL ZHUH JRLQJ DERXW WKH EXVLQHVV RI SURY
IRU WKHLU IDPLOLHV 1H[W WKH\ ZHUH ILJKWLQJ WR VDYH WK
FRXOG KDYH GHSRSXODWHG HDVWHUQ -DSDQ DQG EH\RQG :H
RXU HWHUQDO JUDWLWXGH

:H DOVR RZH WKHP RXU RZQ EHVW HIIRUWV 6LQFH WKH S
DXWKRULWLHV ZLWK KDUG HDUQHG H[SHULHQFH LQ UDGLDWLRQ
RWKHU UHODWHG GLVFLSOLQHV 7KH SHRSOH RI)XNXVKLPD DO
VSHDNLQJ LQYLWDWLRQV EXW ZKR QHYHUWKHOHVV DUH HDJHU
DQG OHW WKH GLYHUVLW\ RI RSLQLRQV LQVSLUH RQH¶V RZQ H[D
XV IDFH D PLUURU HYHU\ PRUQLQJ 7KH UHIOHFWLRQ VKRXOG P

7RGD\ ZLOO , EH RI VHUYLFH WR RWKHUV"

7RGD\ ZLOO , DFW ZLWK LQWHJULW\"

)RU DOO RI XV LQYROYHG LQ WKH)XNXVKLPD +HDOWK 0DQDJHPH
VDPH DQ<ZHU 7KLV FRPPLWPHQW WR VHUYLFH DQG LQWHJULW\ ZL
,QWHUQDWLRQDO 6\PSRVLXP 2QFH DJDLQ WKH SHRSOH ZH VHU
ZLOO JXLGH WKH V\PSRVLXP¶V WKHPH DQG WLPH

$ SLFWXUH RI RXU VW V\PSRVLXP FRQYHQHG LQ

%LRJUDSK\

.HQQHWK 1ROOHW HDUQHG 0' DQG 3K' GHJUHHV IURP WKH 0D
DQG WUDQVIXVLRQ PHGLFLQH $IWHU 0D\R KH MRLQHG 1RUWK &HQWL
&RQFXUUHQWO\ KH VHUYHG DV EORRG EDQN PHGLFDO GLUHFWRU R
EHFDPH DQ DVVLVWDQW SURIHVVRU DW WKH 8QLYHUVLW\ RI 0LQQHV
'U 3DXO +ROODQG LQYLWHG 1ROOHW WR EH DQ DVVRFLDWH
XQWLO 'U +ROODQG¶V UHWLUHPHQW 7KHUHDIWHU 'U 1RO
&URVV %ORRG 6HUYLFH¶V 1DFDO (GXFDWLRQ 3URJUDP 0DQD
VSHFLDOLVW LQ 4XHHQVODQG
%\ LQYLWDWLRQ RI 3URIHVVRU +LWRVKL 2KWR 1ROOHW MR
7UDQVIXVLRQ DQG 7UDQVSODQW &RQWUDP\ WR HYDFXDWLRQ
DIWHU WKH *UHDW (DVW -DSDQ (DUWKTXDNH 'U 1ROOHW VW
UHOLHI DQG IRU WKH ORQJ WHUP)XNXVKLPD 3UHIHFWXUH¶V UHYLW

5HSRUW RI WKH QG ,QWHUQDWLRQDO 6\PSRVLXP RI WK
IRU WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6X

3XEOLVKHG LQ $XJXVW

3XEOLVKHG E\
([HFXWLYH &RPPLWWHH IRU WKH ,QWHUQDWLRQDO 6\PSRVLX
IRU WKH)XNXVKLPD +HDOWK 0DQDJHPHQW 6XU

&RPPLWWHH 0HPEHUV
FXUUHQW DV RI WKH WLPH RI WKH V\PSR

&KDLU .$0,<$ .HQML
9LFH &KDLU 6$,72 .L\RVKL 2+72 +LWRVKL
0HPEHUV'$7(0DQDEX 268*$ .HQLFKL 2+,5$ 7HWVX\D *27
6+,085$ +LURVKL 68=8., 6DWRVKL 68=8., 6DWRUX 68=8.
72,'$ -XQ .HQQHWK 12//(7 0$('$ 0DVDKDUX 0$768=8
0202, 0DKR <68085 6HL<M2L2<$ 6XVXPX

2IILFH5DGLDWLRQ 0HGLFDO 6FLHQFH &HQWHU IRU WKH)XNXVKL
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+LNDULJD RND)XNXVKLPD FLW\ )XNXVKLPD -3
7HO

&RS\ULJKW &)XNXVKLPD 0HGLFDO 8QLYHUV
$OO5LJKWV5HVHUYHG

Radiation Medical Science Center for the Fukushima Health Management Survey