

**THE  
SKEPTIC  
ZONE  
PODCAST**

[www.skepticzone.tv](http://www.skepticzone.tv)

1  
00:00:09,110 --> 00:00:05,920

[Music]

2  
00:00:13,910 --> 00:00:09,120

welcome to the skeptic zone the podcast

3  
00:00:22,290 --> 00:00:13,920

from Australia for science and reason

4  
00:00:28,919 --> 00:00:24,790

yes it's the skeptic zone podcast

5  
00:00:31,540 --> 00:00:28,929

episode number 459 for the 6th of August

6  
00:00:34,660 --> 00:00:31,550

2017 Richardson is here with you from

7  
00:00:38,460 --> 00:00:34,670

Sydney Australia a fine example of

8  
00:00:41,889 --> 00:00:38,470

winter today I think cool and crisp and

9  
00:00:43,899 --> 00:00:41,899

scattered clouds I think looking out the

10  
00:00:47,020 --> 00:00:43,909

window here of the studio well there's

11  
00:00:48,549 --> 00:00:47,030

some sun shining maybe it's a I think

12  
00:00:50,410 --> 00:00:48,559

it's gonna turn out to be a very nice

13  
00:00:52,959 --> 00:00:50,420

day I'm gonna have a fun day folks I am

14

00:00:55,990 --> 00:00:52,969

later on today later on this afternoon

15

00:00:59,590 --> 00:00:56,000

I'm heading downtown Sydney to a place

16

00:01:01,930 --> 00:00:59,600

called harpoon Harry's harpoon Harry's

17

00:01:04,570 --> 00:01:01,940

where our very own Maynard will be doing

18

00:01:07,090 --> 00:01:04,580

a trivia afternoon looking forward to

19

00:01:08,560 --> 00:01:07,100

that if you're in Sydney if you're in

20

00:01:10,810 --> 00:01:08,570

Sydney and you have time

21

00:01:13,480 --> 00:01:10,820

check out harpoon Harry's around about

22

00:01:16,330 --> 00:01:13,490

three o'clock or so this afternoon for

23

00:01:17,919 --> 00:01:16,340

trivia with Maynard and I think I'll

24

00:01:19,840 --> 00:01:17,929

need a little bit of amusement a little

25

00:01:21,880 --> 00:01:19,850

bit of relaxation this afternoon after

26  
00:01:23,609 --> 00:01:21,890  
getting out this week's episode of the

27  
00:01:27,280 --> 00:01:23,619  
skeptics urn which is chock-a-block

28  
00:01:29,319 --> 00:01:27,290  
brimming over and a mixed bag we're

29  
00:01:31,749 --> 00:01:29,329  
going to start with a report the welcome

30  
00:01:33,609 --> 00:01:31,759  
return of our reporter Mandy lee noble

31  
00:01:34,859 --> 00:01:33,619  
the diet skeptic who hasn't been on the

32  
00:01:40,240 --> 00:01:34,869  
show for a while

33  
00:01:42,520 --> 00:01:40,250  
Mandy is going to talk about fluoride in

34  
00:01:47,499 --> 00:01:42,530  
the drinking water system here in

35  
00:01:52,480 --> 00:01:47,509  
Australia and some of the moves efforts

36  
00:01:54,550 --> 00:01:52,490  
in getting that removed but I for one

37  
00:01:57,450 --> 00:01:54,560  
I'm glad that there's fluoride in our

38  
00:02:01,599 --> 00:01:57,460

drinking water whenever I chew my food

39

00:02:03,130 --> 00:02:01,609

teef seem to work ok hmm then following

40

00:02:06,069 --> 00:02:03,140

that it's an oldie but a goodie it's the

41

00:02:07,630 --> 00:02:06,079

eat less diet with Professor Stefan

42

00:02:10,150 --> 00:02:07,640

Sokka Steph and of course the other

43

00:02:12,849 --> 00:02:10,160

co-host of the skeptics urn who makes an

44

00:02:15,849 --> 00:02:12,859

appearance from time to time then we

45

00:02:18,550 --> 00:02:15,859

have an ongoing story a very big story

46

00:02:21,630 --> 00:02:18,560

as it's turning out and there's so much

47

00:02:24,789 --> 00:02:21,640

to this story that I'm going to add some

48

00:02:26,979 --> 00:02:24,799

even some more updates at the end of the

49

00:02:30,009 --> 00:02:26,989

episode today so stay tuned for that

50

00:02:30,820 --> 00:02:30,019

this is all about the movie VAX touring

51  
00:02:34,270 --> 00:02:30,830  
the country

52  
00:02:37,170 --> 00:02:34,280  
I think it's just about done for the

53  
00:02:40,060 --> 00:02:37,180  
moment but it's caused lots of

54  
00:02:43,060 --> 00:02:40,070  
controversy lots of news coming out

55  
00:02:47,070 --> 00:02:43,070  
about it but not the news the VAX people

56  
00:02:51,330 --> 00:02:47,080  
wanted to come out it's about the the

57  
00:02:53,830 --> 00:02:51,340  
deception being used when it comes to

58  
00:02:56,950 --> 00:02:53,840  
this movie being shown around the

59  
00:02:59,350 --> 00:02:56,960  
country and some of the he said she said

60  
00:03:01,930 --> 00:02:59,360  
he'll he said he said she said she said

61  
00:03:03,820 --> 00:03:01,940  
this sort of thing going on we said this

62  
00:03:07,810 --> 00:03:03,830  
no you didn't this happened no it didn't

63  
00:03:09,790 --> 00:03:07,820

we did this it's quite a saga it really

64

00:03:11,800 --> 00:03:09,800

is but the upshot is of course this

65

00:03:15,130 --> 00:03:11,810

dreadful movie is being shown around the

66

00:03:15,850 --> 00:03:15,140

country what's probably hopefully not at

67

00:03:18,360 --> 00:03:15,860

the moment

68

00:03:22,170 --> 00:03:18,370

and of course there have been some

69

00:03:25,720 --> 00:03:22,180

videos released of interviews and so on

70

00:03:28,060 --> 00:03:25,730

from these events where the VAX movie is

71

00:03:29,350 --> 00:03:28,070

being shown some of it's quite quite

72

00:03:30,850 --> 00:03:29,360

frightening anyway we'll be covering

73

00:03:33,250 --> 00:03:30,860

some of that a little bit later on in

74

00:03:35,740 --> 00:03:33,260

the show so much to cover and so much

75

00:03:37,270 --> 00:03:35,750

late-breaking news that there is even

76

00:03:39,670 --> 00:03:37,280

more updates at the end of the show

77

00:03:41,160 --> 00:03:39,680

there in the continuing series of

78

00:03:43,720 --> 00:03:41,170

interviews with Anne Reed from the

79

00:03:46,630 --> 00:03:43,730

National Center for Science education in

80

00:03:49,570 --> 00:03:46,640

Oakland California this week and tells

81

00:03:54,520 --> 00:03:49,580

us about her work into sequencing the

82

00:03:56,890 --> 00:03:54,530

genome of the Spanish flu epidemic which

83

00:03:59,880 --> 00:03:56,900

cost millions of people their lives in

84

00:04:03,130 --> 00:03:59,890

the earlier part of last century and

85

00:04:06,280 --> 00:04:03,140

some of the science behind behind

86

00:04:09,310 --> 00:04:06,290

discovering what that flu was all about

87

00:04:11,410 --> 00:04:09,320

it's absolutely fascinating of course we

88

00:04:14,500 --> 00:04:11,420

have brouhaha science from Australia

89

00:04:19,599 --> 00:04:14,510

science TV this week Ben Lewis tells us

90

00:04:25,000 --> 00:04:19,609

about t-rex and could you outrun could

91

00:04:27,159 --> 00:04:25,010

you outrun a t-rex if you had to aye aye

92

00:04:30,040 --> 00:04:27,169

I thought I couldn't but maybe I could

93

00:04:32,050 --> 00:04:30,050

find out a bit later on then to round

94

00:04:34,330 --> 00:04:32,060

off the show it's the raw skeptic Haile

95

00:04:39,460 --> 00:04:34,340

Robinson discussing an article written

96

00:04:43,580 --> 00:04:39,470

by Jane Hansen about the real costs of a

97

00:04:44,750 --> 00:04:43,590

low vaccination rate in society

98

00:04:47,060 --> 00:04:44,760

but now it's time for me to run

99

00:04:50,240 --> 00:04:47,070

downstairs and have go into the cupboard

100

00:04:54,320 --> 00:04:50,250

and look to see if I still have some

101  
00:04:56,150 --> 00:04:54,330  
Dutch licorice left I quite like Dutch

102  
00:04:58,930 --> 00:04:56,160  
licorice I wonder if you're the same

103  
00:05:02,390 --> 00:04:58,940  
yourself this is the the stronger

104  
00:05:03,890 --> 00:05:02,400  
licorice I know what is Dutch licorice

105  
00:05:05,750 --> 00:05:03,900  
it might be known as something else in

106  
00:05:09,890 --> 00:05:05,760  
other parts of the world it's it's more

107  
00:05:13,700 --> 00:05:09,900  
salty it's quite salty I think Sweden -

108  
00:05:16,490 --> 00:05:13,710  
maybe this is quite salty licorice hmm

109  
00:05:18,470 --> 00:05:16,500  
if you're a licorice lover why don't you

110  
00:05:21,500 --> 00:05:18,480  
run down to your cupboard and see if you

111  
00:05:25,330 --> 00:05:21,510  
have some to chew on that and enjoy the

112  
00:05:25,340 --> 00:05:37,250  
[Music]

113  
00:05:45,890 --> 00:05:39,390

that looks good enough to eat

114

00:05:47,930 --> 00:05:45,900

or does it here's the diet skeptic

115

00:05:50,110 --> 00:05:47,940

mandelino ball

116

00:05:51,680 --> 00:05:50,120

[Laughter]

117

00:05:55,560 --> 00:05:51,690

[Music]

118

00:05:58,890 --> 00:05:55,570

hello skeptics and listeners mandelino

119

00:06:06,060 --> 00:05:58,900

ball here dietitian and skeptic

120

00:06:09,840 --> 00:06:06,070

reporting from Brisbane welcome back

121

00:06:11,969 --> 00:06:09,850

everyone to the diet skeptic report that

122

00:06:16,379 --> 00:06:11,979

has been quite some time since my last

123

00:06:19,530 --> 00:06:16,389

report but keen listeners may notice how

124

00:06:22,379 --> 00:06:19,540

much clearer this recording is that is

125

00:06:25,350 --> 00:06:22,389

thanks to the skeptic zone PayPal and

126

00:06:27,180 --> 00:06:25,360

patreon supporters who enabled Richard

127

00:06:30,689 --> 00:06:27,190

to purchase this wonderful new

128

00:06:33,990 --> 00:06:30,699

microphone for me so thank you everyone

129

00:06:36,840 --> 00:06:34,000

I hope this new piece of hardware leads

130

00:06:39,830 --> 00:06:36,850

to more frequent reports on the whoo and

131

00:06:43,050 --> 00:06:39,840

pseudoscience that inhabits nutrition

132

00:06:45,300 --> 00:06:43,060

now for this week's report which is one

133

00:06:48,360 --> 00:06:45,310

I've wanted to bring you for some time

134

00:06:51,060 --> 00:06:48,370

but seems even more pertinent given

135

00:06:54,960 --> 00:06:51,070

proposed changes to state legislation in

136

00:06:57,659 --> 00:06:54,970

Tasmania Kentish Council mayor Donald

137

00:06:59,730 --> 00:06:57,669

weights is calling for the decision to

138

00:07:02,960 --> 00:06:59,740

fluoridate local water supplies in

139

00:07:06,450 --> 00:07:02,970

Tasmania to be handed to local councils

140

00:07:08,339 --> 00:07:06,460

this may see Tasmania the first state in

141

00:07:12,240 --> 00:07:08,349

Australia to mandate the fluoridation of

142

00:07:14,670 --> 00:07:12,250

drinking water in 1953 follow Queensland

143

00:07:17,129 --> 00:07:14,680

in scrapping an effective Public Health

144

00:07:20,339 --> 00:07:17,139

intervention in the regional and remote

145

00:07:22,740 --> 00:07:20,349

communities that need it the most the

146

00:07:25,680 --> 00:07:22,750

World Health Organization recognizes

147

00:07:27,659 --> 00:07:25,690

that both excessive and inadequate

148

00:07:29,850 --> 00:07:27,669

intake of fluoride can have negative

149

00:07:32,730 --> 00:07:29,860

effects this is from the World Health

150

00:07:34,620 --> 00:07:32,740

Organization website public health

151  
00:07:37,050 --> 00:07:34,630  
actions are needed to provide sufficient

152  
00:07:39,350 --> 00:07:37,060  
fluoride intake in areas where this is

153  
00:07:41,820 --> 00:07:39,360  
lacking so as to minimize tooth decay

154  
00:07:42,580 --> 00:07:41,830  
this can be done through drinking water

155  
00:07:45,040 --> 00:07:42,590  
fluoridation

156  
00:07:48,790 --> 00:07:45,050  
or when this is not possible through

157  
00:07:51,310 --> 00:07:48,800  
salt or milk fluoridation excess fluid

158  
00:07:54,160 --> 00:07:51,320  
intake usually occurs through the

159  
00:07:56,110 --> 00:07:54,170  
consumption of groundwater naturally

160  
00:07:58,870 --> 00:07:56,120  
rich and flow or crops that take up

161  
00:08:02,440 --> 00:07:58,880  
fluoride and are irrigated with this

162  
00:08:04,750 --> 00:08:02,450  
water fluoridation is further supported

163  
00:08:06,850 --> 00:08:04,760

by the Centers for Disease Control and

164

00:08:09,190 --> 00:08:06,860

Prevention who claim that water

165

00:08:13,030 --> 00:08:09,200

fluoridation reduces cavities in

166

00:08:15,100 --> 00:08:13,040

children and adults by 25% unless the

167

00:08:17,890 --> 00:08:15,110

fluoridation of drinking water as one of

168

00:08:22,290 --> 00:08:17,900

the ten great public health achievements

169

00:08:25,120 --> 00:08:22,300

of the United States in Australia on

170

00:08:27,100 --> 00:08:25,130

2011 government report of the rates of

171

00:08:29,530 --> 00:08:27,110

dental decay in children found a

172

00:08:32,340 --> 00:08:29,540

correlation between high rates of tooth

173

00:08:36,040 --> 00:08:32,350

decay and low socioeconomic status

174

00:08:37,450 --> 00:08:36,050

however it also found that children for

175

00:08:39,580 --> 00:08:37,460

the states and territories with the

176

00:08:41,730 --> 00:08:39,590

lowest rates of fluoridation had the

177

00:08:44,500 --> 00:08:41,740

highest rates of tooth decay

178

00:08:47,020 --> 00:08:44,510

interestingly the difference in tooth

179

00:08:49,300 --> 00:08:47,030

decay for 12 year olds in states with

180

00:08:52,090 --> 00:08:49,310

higher rates of fluoridation was less

181

00:08:54,100 --> 00:08:52,100

consistent with socioeconomic status it

182

00:08:57,520 --> 00:08:54,110

seems that we have fluoridated water

183

00:09:01,480 --> 00:08:57,530

rates of tooth decay will reduce most

184

00:09:03,460 --> 00:09:01,490

kids from low socio-economic groups in

185

00:09:05,740 --> 00:09:03,470

my own state of Queensland the

186

00:09:09,700 --> 00:09:05,750

implementation of water fluoridation has

187

00:09:12,220 --> 00:09:09,710

been far from successful in 2007 the

188

00:09:14,350 --> 00:09:12,230

then premier Anna Bly successfully

189

00:09:17,620 --> 00:09:14,360

passed legislation for mandatory water

190

00:09:20,650 --> 00:09:17,630

fluoridation some 15 years after other

191

00:09:22,480 --> 00:09:20,660

Australian states however the public

192

00:09:26,800 --> 00:09:22,490

health victory was short-lived

193

00:09:29,500 --> 00:09:26,810

in 2012 the newly elected L&P Premier

194

00:09:32,850 --> 00:09:29,510

Campbell Newman handed the decision of

195

00:09:35,080 --> 00:09:32,860

water fluoridation back to the council's

196

00:09:37,720 --> 00:09:35,090

local governments do not have the

197

00:09:39,270 --> 00:09:37,730

processes or resources or experts in

198

00:09:42,340 --> 00:09:39,280

place to make informed decisions

199

00:09:44,140 --> 00:09:42,350

regarding public health issues when

200

00:09:47,170 --> 00:09:44,150

water fluoridation comes up for review

201  
00:09:49,690 --> 00:09:47,180  
by councils they are inundated by

202  
00:09:52,390 --> 00:09:49,700  
misinformation from organised anti

203  
00:09:55,560 --> 00:09:52,400  
fluorite groups who often do not even

204  
00:09:58,440 --> 00:09:55,570  
reside in the local area since

205  
00:10:00,540 --> 00:09:58,450  
2012 2/3 of Queensland councils have

206  
00:10:02,220 --> 00:10:00,550  
opted out of water fluoridation under

207  
00:10:05,310 --> 00:10:02,230  
the pressure of anti fluoride lobby

208  
00:10:07,140 --> 00:10:05,320  
groups many of the councils that have

209  
00:10:09,900 --> 00:10:07,150  
stopped fluoridated drinking water are

210  
00:10:12,780 --> 00:10:09,910  
in regional and remote areas that may

211  
00:10:16,230 --> 00:10:12,790  
also have reduced access to dental

212  
00:10:19,110 --> 00:10:16,240  
services having investigated water

213  
00:10:21,720 --> 00:10:19,120

fluoridation in Australia I found that

214

00:10:24,480 --> 00:10:21,730

there is one thing that the anti

215

00:10:26,520 --> 00:10:24,490

fluorite groups have right the benefits

216

00:10:29,070 --> 00:10:26,530

of water fluoridation diminish with

217

00:10:32,730 --> 00:10:29,080

increasing high socioeconomic status and

218

00:10:34,560 --> 00:10:32,740

access to dental services anti flora

219

00:10:36,600 --> 00:10:34,570

campaigners use this argument to

220

00:10:39,960 --> 00:10:36,610

question the necessity of water

221

00:10:42,120 --> 00:10:39,970

fluoridation ironically public health

222

00:10:45,270 --> 00:10:42,130

advocates use the same argument to

223

00:10:47,370 --> 00:10:45,280

support water fluoridation this is

224

00:10:50,340 --> 00:10:47,380

because public health advocates and

225

00:10:54,210 --> 00:10:50,350

health care workers understand that it

226  
00:10:56,220 --> 00:10:54,220  
is socioeconomic status and access to

227  
00:10:58,700 --> 00:10:56,230  
health services that are the biggest

228  
00:11:00,780 --> 00:10:58,710  
barriers to health care in Australia

229  
00:11:04,050 --> 00:11:00,790  
essentially community water fluoridation

230  
00:11:06,660 --> 00:11:04,060  
is an issue of social justice and health

231  
00:11:09,120 --> 00:11:06,670  
equity when the anti fluorite

232  
00:11:10,920 --> 00:11:09,130  
campaigners have it completely wrong is

233  
00:11:14,130 --> 00:11:10,930  
the claim that water fluoridation is

234  
00:11:16,350 --> 00:11:14,140  
unsafe or untested I will provide a

235  
00:11:18,570 --> 00:11:16,360  
quick list of responses to some of the

236  
00:11:21,150 --> 00:11:18,580  
Colman claims made by anti fluoride

237  
00:11:22,530 --> 00:11:21,160  
lobbyists from Queensland Health and the

238  
00:11:25,830 --> 00:11:22,540

National Health and Medical Research

239

00:11:27,810 --> 00:11:25,840

Council of course I would love to

240

00:11:30,300 --> 00:11:27,820

completely address all the claims made

241

00:11:32,670 --> 00:11:30,310

by the anti flora campaigners however

242

00:11:34,620 --> 00:11:32,680

there are far too many and they are far

243

00:11:37,400 --> 00:11:34,630

too broad to be completely addressed at

244

00:11:39,390 --> 00:11:37,410

any one time groups who oppose

245

00:11:41,750 --> 00:11:39,400

evidence-based public health measures

246

00:11:44,880 --> 00:11:41,760

often adopt a scattergun approach

247

00:11:48,390 --> 00:11:44,890

leaving experts unable to adequately

248

00:11:52,140 --> 00:11:48,400

address every uninformed claim anyway

249

00:11:56,520 --> 00:11:52,150

here are some responses to common

250

00:11:59,700 --> 00:11:56,530

fluoride miss fluoride does not cause

251  
00:12:01,320 --> 00:11:59,710  
cancer scientific studies have failed to

252  
00:12:05,280 --> 00:12:01,330  
establish a link between water

253  
00:12:07,410 --> 00:12:05,290  
fluoridation and cancer cancer rates in

254  
00:12:08,350 --> 00:12:07,420  
the rest of Australia are not different

255  
00:12:11,079 --> 00:12:08,360  
to those in Queen

256  
00:12:13,949 --> 00:12:11,089  
where until recently few communities

257  
00:12:17,309 --> 00:12:13,959  
have had access to fluoridated water

258  
00:12:19,329 --> 00:12:17,319  
fluoride does not cause allergies

259  
00:12:20,650 --> 00:12:19,339  
scientific studies have failed to

260  
00:12:23,109 --> 00:12:20,660  
establish a link between water

261  
00:12:26,769 --> 00:12:23,119  
fluoridation and allergies or other

262  
00:12:29,699 --> 00:12:26,779  
immunological effects fluoride is an

263  
00:12:34,090 --> 00:12:29,709

element already found in food and water

264

00:12:35,979 --> 00:12:34,100

fluoride does not cause arthritis no

265

00:12:38,379 --> 00:12:35,989

difference has been found in the

266

00:12:41,919 --> 00:12:38,389

incidence of arthritis in fluoridated

267

00:12:44,319 --> 00:12:41,929

and non-fluoridated communities no

268

00:12:46,239 --> 00:12:44,329

country has banned fluoride some

269

00:12:49,259 --> 00:12:46,249

countries may use salt or milk as an

270

00:12:52,079 --> 00:12:49,269

alternative to increase exposure to a

271

00:12:54,519 --> 00:12:52,089

fluoride does not cause bone fractures

272

00:12:55,869 --> 00:12:54,529

rates of bone fractures have not

273

00:12:58,960 --> 00:12:55,879

increased in communities that have

274

00:13:00,939 --> 00:12:58,970

introduced water fluoridation and water

275

00:13:04,720 --> 00:13:00,949

fluoridation has been endorsed by

276

00:13:07,449 --> 00:13:04,730

osteoporosis Australia water

277

00:13:10,090 --> 00:13:07,459

fluoridation does not cause excessive

278

00:13:12,220 --> 00:13:10,100

dental fluorosis most cirrhosis is

279

00:13:14,799 --> 00:13:12,230

barely detectable and does not damage

280

00:13:18,069 --> 00:13:14,809

teeth as a posted dental decay which is

281

00:13:21,789 --> 00:13:18,079

unsightly painful and expensive to

282

00:13:25,119 --> 00:13:21,799

repair and lastly water fluoridation is

283

00:13:27,309 --> 00:13:25,129

not mass medication water flotation

284

00:13:30,400 --> 00:13:27,319

simply adjusts the amount of a substance

285

00:13:33,090 --> 00:13:30,410

already found naturally in the water to

286

00:13:36,429 --> 00:13:33,100

a level is beneficial to teeth

287

00:13:38,559 --> 00:13:36,439

finally skeptics own listeners if you

288

00:13:41,259 --> 00:13:38,569

are familiar with the work of the

289

00:13:44,019 --> 00:13:41,269

Australian vaccination skeptics network

290

00:13:46,509 --> 00:13:44,029

a cursory glance at the website or

291

00:13:49,409 --> 00:13:46,519

Facebook pages of an organised anti

292

00:13:52,150 --> 00:13:49,419

fluoride group will seem very familiar

293

00:13:54,129 --> 00:13:52,160

despite being two very different health

294

00:13:56,350 --> 00:13:54,139

issues with two very different health

295

00:13:58,780 --> 00:13:56,360

interventions there are significant

296

00:14:01,780 --> 00:13:58,790

similarities in the conspiracy theories

297

00:14:04,600 --> 00:14:01,790

of those who impose them there's also a

298

00:14:06,489 --> 00:14:04,610

surprising crossover in the celebrities

299

00:14:11,429 --> 00:14:06,499

who support both the anti vaccination

300

00:14:15,489 --> 00:14:11,439

and anti fluid movements this includes

301  
00:14:18,189 --> 00:14:15,499  
2015 bent spoon winner and celebrity

302  
00:14:21,580 --> 00:14:18,199  
chef Peter Evans who wrote the following

303  
00:14:23,680 --> 00:14:21,590  
statement on social media

304  
00:14:26,050 --> 00:14:23,690  
I'm concerned about mass fluoridation of

305  
00:14:28,240 --> 00:14:26,060  
public water and I strongly believe that

306  
00:14:30,580 --> 00:14:28,250  
if people want to add fluoride to their

307  
00:14:32,950 --> 00:14:30,590  
drinking water then they should but it

308  
00:14:35,740 --> 00:14:32,960  
should be a choice that each person has

309  
00:14:39,760 --> 00:14:35,750  
the ability and right to make for their

310  
00:14:42,630 --> 00:14:39,770  
own household repeat if only public

311  
00:14:46,390 --> 00:14:42,640  
health interventions weren't that easy

312  
00:15:03,160 --> 00:14:46,400  
thank you listeners until next time this

313  
00:15:05,530 --> 00:15:03,170

has been the diet sceptic hi I'm

314

00:15:07,840 --> 00:15:05,540

professor Stefan soika from the miracle

315

00:15:09,940 --> 00:15:07,850

weight-loss Academy and I'm here to tell

316

00:15:12,910 --> 00:15:09,950

you about our new miracle weight-loss

317

00:15:15,460 --> 00:15:12,920

program eat less and exercise more

318

00:15:17,650 --> 00:15:15,470

the secret to weight loss will finally

319

00:15:20,380 --> 00:15:17,660

be revealed to you if you sign up to

320

00:15:24,340 --> 00:15:20,390

this amazing program now for just 12

321

00:15:26,230 --> 00:15:24,350

easy payments of \$395 95 you will get

322

00:15:29,680 --> 00:15:26,240

the complete eat less and exercise more

323

00:15:32,500 --> 00:15:29,690

18 DVD set the for volume eat less and

324

00:15:34,960 --> 00:15:32,510

exercise more book series 22 eat less

325

00:15:36,790 --> 00:15:34,970

and exercise more audio CDs as well as

326

00:15:38,770 --> 00:15:36,800

the exclusive membership to the eat less

327

00:15:41,050 --> 00:15:38,780

and exercise more website to eat less

328

00:15:43,420 --> 00:15:41,060

and exercise more podcast podcast

329

00:15:45,610 --> 00:15:43,430

Facebook page and Twitter posts in which

330

00:15:48,190 --> 00:15:45,620

you will finally have revealed to you

331

00:15:50,020 --> 00:15:48,200

the secret to weight loss you can never

332

00:15:51,550 --> 00:15:50,030

get the weight off without the secrets

333

00:15:54,100 --> 00:15:51,560

that will be revealed to you in this

334

00:15:56,020 --> 00:15:54,110

miracle weight loss Academy program sign

335

00:15:58,390 --> 00:15:56,030

up to eat less and exercise more and

336

00:16:00,700 --> 00:15:58,400

start losing weight today but that's not

337

00:16:02,590 --> 00:16:00,710

all if you sign up and start to eat less

338

00:16:04,900 --> 00:16:02,600

of exercise more program within the next

339

00:16:07,630 --> 00:16:04,910

thirty minutes we will also give you the

340

00:16:09,490 --> 00:16:07,640

amazing relaxation program lie down and

341

00:16:11,590 --> 00:16:09,500

close your eyes within which you will

342

00:16:14,170 --> 00:16:11,600

discover the miraculous secret to

343

00:16:14,530 --> 00:16:14,180

eliminating stress eat less and exercise

344

00:16:16,630 --> 00:16:14,540

more

345

00:16:20,140 --> 00:16:16,640

the secret to weight loss is only 12

346

00:16:22,740 --> 00:16:20,150

easy payments of \$395 ninety five away

347

00:16:31,920 --> 00:16:22,750

to eat less and exercise more calm now

348

00:16:35,050 --> 00:16:31,930

[Music]

349

00:16:38,230 --> 00:16:35,060

as we mentioned last week on the

350

00:16:41,170 --> 00:16:38,240

skeptics only the documentary is you

351  
00:16:44,710 --> 00:16:41,180  
know documentary of axed from cover up

352  
00:16:46,270 --> 00:16:44,720  
to catastrophe I don't need to tell you

353  
00:16:49,060 --> 00:16:46,280  
too much about that I'm sure you're very

354  
00:16:52,030 --> 00:16:49,070  
well aware of that story by now about

355  
00:16:54,460 --> 00:16:52,040  
that documentary produced by Andrew

356  
00:16:59,500 --> 00:16:54,470  
Wakefield mr. Andrew Wakefield

357  
00:17:02,650 --> 00:16:59,510  
well the VAX team as they love the call

358  
00:17:06,900 --> 00:17:02,660  
themselves the VAX team have been in

359  
00:17:09,010 --> 00:17:06,910  
australia aided and abetted by the

360  
00:17:11,440 --> 00:17:09,020  
looney tunes of the Australian

361  
00:17:14,560 --> 00:17:11,450  
vaccination skeptics network on their

362  
00:17:18,490 --> 00:17:14,570  
website at the moment I notice however

363  
00:17:20,320 --> 00:17:18,500

their main logo still says avian and in

364

00:17:23,050 --> 00:17:20,330

little writing underneath that it says

365

00:17:26,350 --> 00:17:23,060

australian vaccination skeptics network

366

00:17:28,440 --> 00:17:26,360

so so i wonder what they were legally

367

00:17:32,470 --> 00:17:28,450

supposed to do with their logo

368

00:17:37,210 --> 00:17:32,480

nevertheless there's a page here on

369

00:17:40,720 --> 00:17:37,220

their website entitled VAX with a big

370

00:17:45,670 --> 00:17:40,730

poster from the movie which has a

371

00:17:49,030 --> 00:17:45,680

syringe faced down against a sea of

372

00:17:51,520 --> 00:17:49,040

black and it seems that there's gas

373

00:17:55,020 --> 00:17:51,530

coming out of syringe makes a lot of

374

00:17:59,260 --> 00:17:55,030

sense of course and the page says about

375

00:18:03,550 --> 00:17:59,270

2017 australian VAX tour screenings are

376

00:18:07,540 --> 00:18:03,560

here the VAX team and the avian not the

377

00:18:10,240 --> 00:18:07,550

avsm skeptics the VAX team and the avian

378

00:18:12,970 --> 00:18:10,250

will be touring down the east coast of

379

00:18:16,330 --> 00:18:12,980

australia from July 23rd to August 5th

380

00:18:22,240 --> 00:18:16,340

2017 at every screening along the tour

381

00:18:25,030 --> 00:18:22,250

and they listed the series of names from

382

00:18:26,530 --> 00:18:25,040

the VAX team who will be there to take

383

00:18:28,360 --> 00:18:26,540

questions from the audience after

384

00:18:31,450 --> 00:18:28,370

screenings chief amongst those would be

385

00:18:34,000 --> 00:18:31,460

Brian Hooker and Polly Tommy it also

386

00:18:36,630 --> 00:18:34,010

says that the VAX team will be taking

387

00:18:39,940 --> 00:18:36,640

collecting stories after the screenings

388

00:18:43,090 --> 00:18:39,950

along the road on behalf of the u.s. VAX

389

00:18:45,760 --> 00:18:43,100

bus and your stories will join the

390

00:18:48,250 --> 00:18:45,770

official VAX channels now a couple of

391

00:18:51,220 --> 00:18:48,260

weeks ago dr. Rey Chi covered this issue

392

00:18:53,680 --> 00:18:51,230

of the vexed bus when she interviewed

393

00:18:55,650 --> 00:18:53,690

Craig Egan who goes around the United

394

00:18:58,930 --> 00:18:55,660

States following this vast bus and

395

00:19:01,060 --> 00:18:58,940

pointing out to dr. Rey cheat at the

396

00:19:06,340 --> 00:19:01,070

stories they collect are all anecdotal

397

00:19:09,250 --> 00:19:06,350

and anybody can go along and tell them

398

00:19:11,919 --> 00:19:09,260

stories about their poor sick children

399

00:19:14,530 --> 00:19:11,929

and blame vaccinations there seems to be

400

00:19:17,700 --> 00:19:14,540

little or no vetting also on this page

401

00:19:20,770 --> 00:19:17,710

there is a list of the screenings so far

402

00:19:24,549 --> 00:19:20,780

we have the Sunshine Coast Brisbane Gold

403

00:19:27,460 --> 00:19:24,559

Coast New Castle Sydney Campbell town

404

00:19:30,340 --> 00:19:27,470

which is near Sydney Canberra Melbourne

405

00:19:32,560 --> 00:19:30,350

and Adelaide and it says down the bottom

406

00:19:35,590 --> 00:19:32,570

join us along the tour for screening and

407

00:19:38,470 --> 00:19:35,600

gathering story sharing political

408

00:19:41,290 --> 00:19:38,480

meetings and media interviews this is a

409

00:19:45,010 --> 00:19:41,300

not to be missed experience see I'm

410

00:19:49,360 --> 00:19:45,020

sorry I missed it Henry and right down

411

00:19:54,549 --> 00:19:49,370

the bottom there's a sort of questions

412

00:19:57,730 --> 00:19:54,559

QA for your education question is vac

413

00:20:01,600 --> 00:19:57,740

## Stan anti vaccination documentary answer

414

00:20:04,299 --> 00:20:01,610

no well are the scientific community beg

415

00:20:07,180 --> 00:20:04,309

to differ and here is a very brief

416

00:20:10,240 --> 00:20:07,190

excerpt from one of the meetings and the

417

00:20:16,200 --> 00:20:10,250

voice you will hear is that of Polly

418

00:20:34,210 --> 00:20:22,030

people

419

00:20:38,640 --> 00:20:34,220

are unsafe they kill these doctors okay

420

00:20:42,160 --> 00:20:38,650

I think that makes her position at least

421

00:20:46,440 --> 00:20:42,170

very clear but I'd like to read to you

422

00:20:50,650 --> 00:20:46,450

the webpage report from ABC News

423

00:20:53,680 --> 00:20:50,660

published on the 26th of July 2017 by

424

00:20:57,010 --> 00:20:53,690

Tom Forbes and I'll put a link to this

425

00:20:58,150 --> 00:20:57,020

in the show notes and this refers to the

426  
00:21:00,250 --> 00:20:58,160  
screening of VAX

427  
00:21:03,550 --> 00:21:00,260  
up in Queensland on the Gold Coast and

428  
00:21:05,680 --> 00:21:03,560  
the headline says Gold Coast school

429  
00:21:08,770 --> 00:21:05,690  
tricked into allowing anti-vaccination

430  
00:21:11,170 --> 00:21:08,780  
film screening a Gold Coast principal

431  
00:21:13,600 --> 00:21:11,180  
was hoodwinked into hiring out his

432  
00:21:15,010 --> 00:21:13,610  
school Hall for a screening of a

433  
00:21:17,920 --> 00:21:15,020  
controversial anti-vaccination

434  
00:21:22,000 --> 00:21:17,930  
documentary Queensland Premier Anastasia

435  
00:21:24,700 --> 00:21:22,010  
Palecek says the film VAX from cover up

436  
00:21:27,550 --> 00:21:24,710  
to catastrophe was shown at Miami State

437  
00:21:29,770 --> 00:21:27,560  
High School on Tuesday night despite the

438  
00:21:32,440 --> 00:21:29,780

state government's strong stance in

439

00:21:35,110 --> 00:21:32,450

supporting vaccinations quote my

440

00:21:38,740 --> 00:21:35,120

preliminary advice is that there has

441

00:21:41,200 --> 00:21:38,750

been some misrepresentation to the

442

00:21:43,660 --> 00:21:41,210

school in question in quote mrs. panacek

443

00:21:45,280 --> 00:21:43,670

said quote mary conveyed to the

444

00:21:48,010 --> 00:21:45,290

principal that it was to be conveying

445

00:21:49,720 --> 00:21:48,020

information about organic produce in

446

00:21:51,460 --> 00:21:49,730

quote earlier this month

447

00:21:54,400 --> 00:21:51,470

Health Minister Cameron dick urged

448

00:21:56,770 --> 00:21:54,410

residents to boycott the film that has

449

00:22:01,990 --> 00:21:56,780

caused controversy by linking measles

450

00:22:04,570 --> 00:22:02,000

mumps rubella vaccine to autism quote we

451  
00:22:07,000 --> 00:22:04,580  
are incredibly strong about the need for

452  
00:22:09,430 --> 00:22:07,010  
people to be vaccinated especially

453  
00:22:12,970 --> 00:22:09,440  
children end quote mr. Palecek said

454  
00:22:15,430 --> 00:22:12,980  
quote I don't think they were very clear

455  
00:22:17,230 --> 00:22:15,440  
in their purpose and I don't think they

456  
00:22:20,170 --> 00:22:17,240  
should have been allowed to present in

457  
00:22:22,210 --> 00:22:20,180  
such a manner then quote the incident is

458  
00:22:25,180 --> 00:22:22,220  
being investigated and the premier is

459  
00:22:28,540 --> 00:22:25,190  
waiting for a full briefing Gold Coast

460  
00:22:32,080 --> 00:22:28,550  
public health physician pull and binder

461  
00:22:34,180 --> 00:22:32,090  
said he was aware the film was going to

462  
00:22:36,040 --> 00:22:34,190  
be shown but the location was kept

463  
00:22:37,780 --> 00:22:36,050

secret until ticket buyers

464

00:22:41,200 --> 00:22:37,790

received a text message with the

465

00:22:43,560 --> 00:22:41,210

location late Tuesday afternoon now as

466

00:22:47,380 --> 00:22:43,570

an aside from me this fits into their

467

00:22:53,590 --> 00:22:47,390

overall cloak-and-dagger conspiracy

468

00:22:55,660 --> 00:22:53,600

minded approach in other words they know

469

00:23:00,010 --> 00:22:55,670

this movie's going to cause controversy

470

00:23:01,900 --> 00:23:00,020

anyway but to have the attendees come

471

00:23:04,750 --> 00:23:01,910

along to the movie they don't want you

472

00:23:06,670 --> 00:23:04,760

to see by sending them text messages

473

00:23:09,820 --> 00:23:06,680

just before the showing adds to this

474

00:23:14,020 --> 00:23:09,830

conspiracy cloak-and-dagger undercover

475

00:23:16,890 --> 00:23:14,030

sort of appeal many people have to

476  
00:23:19,600 --> 00:23:16,900  
conspiracy theories I think we continue

477  
00:23:21,490 --> 00:23:19,610  
quote we weren't aware that they were

478  
00:23:23,980 --> 00:23:21,500  
coming to a high school and we're

479  
00:23:26,770 --> 00:23:23,990  
incredibly disappointed as I'm sure the

480  
00:23:28,930 --> 00:23:26,780  
Minister will be after all the work he's

481  
00:23:31,390 --> 00:23:28,940  
put in to improve vaccinations in

482  
00:23:34,120 --> 00:23:31,400  
Queensland in quote the health chief

483  
00:23:36,550 --> 00:23:34,130  
said the film confuses parents quote

484  
00:23:38,410 --> 00:23:36,560  
it's very easy to frighten a parent and

485  
00:23:42,340 --> 00:23:38,420  
no parent wants to do harm to their

486  
00:23:44,350 --> 00:23:42,350  
child in quote dr. van binder said quote

487  
00:23:46,600 --> 00:23:44,360  
there are 25 percent of parents who are

488  
00:23:48,490 --> 00:23:46,610

unsure because of all the noise about

489

00:23:51,580 --> 00:23:48,500

vaccines about whether they should

490

00:23:54,130 --> 00:23:51,590

vaccinate I think the danger is this is

491

00:23:56,560 --> 00:23:54,140

not for the 1.3 percent of Australians

492

00:23:58,990 --> 00:23:56,570

who are conscientious objectors end

493

00:24:02,890 --> 00:23:59,000

quote and that story comes to us by Tom

494

00:24:05,080 --> 00:24:02,900

Forbes writing for the ABC News now we

495

00:24:07,780 --> 00:24:05,090

mentioned that Canberra was on the list

496

00:24:09,400 --> 00:24:07,790

of locations where this movie was

497

00:24:13,390 --> 00:24:09,410

scheduled to be screened and has been

498

00:24:15,310 --> 00:24:13,400

screened and unbelievably the venue in

499

00:24:17,260 --> 00:24:15,320

Canberra was the Australian National

500

00:24:20,110 --> 00:24:17,270

University we pick up the story

501  
00:24:22,900 --> 00:24:20,120  
published at skeptics comdataís you on

502  
00:24:25,480 --> 00:24:22,910  
the 1st of August by Tim Mendham anti

503  
00:24:28,150 --> 00:24:25,490  
vaccination film screamed at Australian

504  
00:24:31,330 --> 00:24:28,160  
National University the Australian

505  
00:24:33,340 --> 00:24:31,340  
national University's science department

506  
00:24:35,410 --> 00:24:33,350  
has played host to a screening of the

507  
00:24:38,770 --> 00:24:35,420  
controversial anti vaccination film

508  
00:24:42,520 --> 00:24:38,780  
faxed on Monday night details of how the

509  
00:24:45,160 --> 00:24:42,530  
booking was made and not yet clear but

510  
00:24:47,590 --> 00:24:45,170  
the university has stated that quote the

511  
00:24:49,030 --> 00:24:47,600  
event was a private booking it was not

512  
00:24:51,190 --> 00:24:49,040  
an a a new event

513  
00:24:54,520 --> 00:24:51,200

it was not in any way endorsed by the

514

00:24:57,190 --> 00:24:54,530

university any claim made by the hirers

515

00:25:00,370 --> 00:24:57,200

that claims a a new endorsement is false

516

00:25:03,010 --> 00:25:00,380

unquote the film was screened on campus

517

00:25:05,650 --> 00:25:03,020

at the Leonard Huxley lecture theatre

518

00:25:08,050 --> 00:25:05,660

the venue for screenings of the film are

519

00:25:10,330 --> 00:25:08,060

only given to perspective attendees a

520

00:25:13,480 --> 00:25:10,340

few hours before the event the

521

00:25:16,000 --> 00:25:13,490

Australian anti vaccination skeptics

522

00:25:18,370 --> 00:25:16,010

Network has uploaded videos of the event

523

00:25:20,290 --> 00:25:18,380

it can be heard at one stage on a video

524

00:25:22,150 --> 00:25:20,300

of the Q&A session following the

525

00:25:23,440 --> 00:25:22,160

screening of the film that they are not

526

00:25:25,660 --> 00:25:23,450

allowed to film the audience

527

00:25:29,350 --> 00:25:25,670

although interviews with attendees are

528

00:25:31,600 --> 00:25:29,360

shown later former AVS n President Meryl

529

00:25:34,330 --> 00:25:31,610

Dory was the speaker at the ANU event

530

00:25:36,490 --> 00:25:34,340

alongside anti-vaxxer ponents bryan

531

00:25:40,360 --> 00:25:36,500

hooker Susanne Humphries and the film

532

00:25:43,810 --> 00:25:40,370

producer Polly Tommy now I've seen some

533

00:25:47,920 --> 00:25:43,820

of the the video of the VAX team going

534

00:25:52,030 --> 00:25:47,930

into the university past all the signs

535

00:25:55,710 --> 00:25:52,040

that say science it's it's galling it

536

00:25:58,390 --> 00:25:55,720

really is galling and the university

537

00:26:01,120 --> 00:25:58,400

need to smarten up their act they need

538

00:26:06,460 --> 00:26:01,130

to explain this they really do to let

539

00:26:09,040 --> 00:26:06,470

this group onto their campus to show

540

00:26:12,010 --> 00:26:09,050

this film is is outrageous frankly

541

00:26:13,660 --> 00:26:12,020

outrageous and I'll play now a very

542

00:26:16,270 --> 00:26:13,670

short clip of some of the advice that

543

00:26:19,330 --> 00:26:16,280

Polly Tommy was giving out afterwards

544

00:26:21,670 --> 00:26:19,340

during interaction with the audience to

545

00:26:34,500 --> 00:26:21,680

a young lady who was interested in

546

00:26:47,760 --> 00:26:37,019

part of the reason I did say two months

547

00:26:49,769 --> 00:26:47,770

that I wanted to yes yeah I wanted to

548

00:26:52,140 --> 00:26:49,779

have that informed decision before I

549

00:26:53,850 --> 00:26:52,150

left so that I could decide whether to

550

00:26:55,529 --> 00:26:53,860

get vaccinated or not for anything

551  
00:26:57,210 --> 00:26:55,539  
enough they might try and pressure me

552  
00:27:00,330 --> 00:26:57,220  
into doing well first of all they are

553  
00:27:02,820 --> 00:27:00,340  
gonna pressurize you and you gonna come

554  
00:27:05,850 --> 00:27:02,830  
back so can we mission mission trips

555  
00:27:08,639 --> 00:27:05,860  
where it's 19 yards have not survived

556  
00:27:10,680 --> 00:27:08,649  
there just a flu vaccine so please these

557  
00:27:16,200 --> 00:27:10,690  
research that my advice is no yeah

558  
00:27:20,250 --> 00:27:16,210  
absolutely I mean really truly it's any

559  
00:27:22,590 --> 00:27:20,260  
vaccine at any age so yes not a good

560  
00:27:25,019 --> 00:27:22,600  
state of affairs the vexed movie being

561  
00:27:27,600 --> 00:27:25,029  
shown up and down the east coast of

562  
00:27:29,310 --> 00:27:27,610  
Australia as I said aided and abetted by

563  
00:27:32,450 --> 00:27:29,320

the Looney Tunes at the Australian

564

00:27:35,549 --> 00:27:32,460

vaccination skeptics Network who must be

565

00:27:38,580 --> 00:27:35,559

enjoying another brief moment in the Sun

566

00:27:40,549 --> 00:27:38,590

and although it's all but over now of

567

00:27:42,750 --> 00:27:40,559

course the fear is that many of the

568

00:27:46,220 --> 00:27:42,760

impressionable parents who went along to

569

00:27:49,560 --> 00:27:46,230

this video the screening of this movie

570

00:27:52,440 --> 00:27:49,570

will now maybe not vaccinate their

571

00:27:54,389 --> 00:27:52,450

children or it confirm their conspiracy

572

00:27:57,330 --> 00:27:54,399

theory beliefs or they're going to try

573

00:27:59,279 --> 00:27:57,340

and persuade their their friends and

574

00:28:01,980 --> 00:27:59,289

family not to vaccinate after seeing

575

00:28:03,779 --> 00:28:01,990

this load of codswallop but again I

576

00:28:06,720 --> 00:28:03,789

refer you to the interview doctor rate

577

00:28:10,860 --> 00:28:06,730

she did with Craig Egan on the skeptic

578

00:28:12,690 --> 00:28:10,870

zone number four five six the 16th of

579

00:28:15,120 --> 00:28:12,700

July that's worth a listen to if you

580

00:28:16,769 --> 00:28:15,130

haven't heard that one already but we

581

00:28:22,770 --> 00:28:16,779

will keep you up to date with any

582

00:28:28,020 --> 00:28:25,340

[Music]

583

00:28:30,710 --> 00:28:28,030

stop the presses hold the rolls here is

584

00:28:34,380 --> 00:28:30,720

some late-breaking news on this story

585

00:28:36,990 --> 00:28:34,390

since I recorded the the pieces you just

586

00:28:39,570 --> 00:28:37,000

heard more controversy has followed the

587

00:28:42,090 --> 00:28:39,580

Baxter movie it's been shown at the

588

00:28:43,560 --> 00:28:42,100

Crown Casino in Melbourne well maybe

589

00:28:45,960 --> 00:28:43,570

that's appropriate if people want to

590

00:28:47,640 --> 00:28:45,970

gamble with their children's health but

591

00:28:50,610 --> 00:28:47,650

more importantly maybe there's a

592

00:28:54,090 --> 00:28:50,620

statement has just come out from the

593

00:28:57,300 --> 00:28:54,100

parents of Riley Hughes the baby who

594

00:29:00,420 --> 00:28:57,310

died in 2015 at only 32 days old

595

00:29:03,270 --> 00:29:00,430

from whooping cough and since then they

596

00:29:06,270 --> 00:29:03,280

have served the foundation light for

597

00:29:09,510 --> 00:29:06,280

Riley which won the 2015 Australian

598

00:29:11,730 --> 00:29:09,520

skeptics Fred Thor net award for the

599

00:29:14,600 --> 00:29:11,740

promotion of Reason in a statement

600

00:29:17,130 --> 00:29:14,610

released from light for Riley

601  
00:29:21,470 --> 00:29:17,140  
anti-vaccination tour of Australia

602  
00:29:23,700 --> 00:29:21,480  
prompts the donation of over 50,000

603  
00:29:26,850 --> 00:29:23,710  
vaccines to children in developing

604  
00:29:29,910 --> 00:29:26,860  
countries last Sunday we donated

605  
00:29:32,310 --> 00:29:29,920  
vaccines on behalf of a group of anti

606  
00:29:35,370 --> 00:29:32,320  
vaccination activists who arrived in

607  
00:29:37,950 --> 00:29:35,380  
Australia keen to spread their fear and

608  
00:29:40,410 --> 00:29:37,960  
misinformation to vulnerable parents we

609  
00:29:43,080 --> 00:29:40,420  
have been blown away by the huge number

610  
00:29:45,720 --> 00:29:43,090  
of people who have echoed our sentiment

611  
00:29:48,900 --> 00:29:45,730  
and made similar donations of vaccines

612  
00:29:52,110 --> 00:29:48,910  
to UNICEF Australia with their tour

613  
00:29:54,540 --> 00:29:52,120

almost over these activists can leave

614

00:29:56,790 --> 00:29:54,550

this weekend knowing their decision to

615

00:30:00,180 --> 00:29:56,800

come to Australia has meant that more

616

00:30:02,310 --> 00:30:00,190

than 50,000 children will now be

617

00:30:04,430 --> 00:30:02,320

protected from serious preventable

618

00:30:06,810 --> 00:30:04,440

diseases like measles and polio

619

00:30:09,030 --> 00:30:06,820

thousands and thousands and thousands of

620

00:30:12,240 --> 00:30:09,040

kids in developing countries will now be

621

00:30:14,400 --> 00:30:12,250

vaccinated just brilliant parents

622

00:30:17,100 --> 00:30:14,410

deserve good information about the risks

623

00:30:19,860 --> 00:30:17,110

and benefits of vaccines and the

624

00:30:24,150 --> 00:30:19,870

information presented by these activists

625

00:30:26,640 --> 00:30:24,160

is discredited misleading and a danger

626  
00:30:30,090 --> 00:30:26,650  
to public health we have statements such

627  
00:30:30,710 --> 00:30:30,100  
as quote vaccines kill end quote end

628  
00:30:33,880 --> 00:30:30,720  
quote

629  
00:30:37,000 --> 00:30:33,890  
doctors are murdering our children and

630  
00:30:39,580 --> 00:30:37,010  
quote anti-vaccination messages can

631  
00:30:42,460 --> 00:30:39,590  
truly cost lives what you have helped us

632  
00:30:46,990 --> 00:30:42,470  
to achieve is a huge win for public

633  
00:30:49,210 --> 00:30:47,000  
health Thank You vac steam if you ever

634  
00:30:50,920 --> 00:30:49,220  
decide to tour our country again just

635  
00:30:53,310 --> 00:30:50,930  
know you will be indirectly responsible

636  
00:30:58,270 --> 00:30:53,320  
for the donation of thousands and

637  
00:31:23,200 --> 00:30:58,280  
thousands more vaccines signed Riley's

638  
00:31:24,610 --> 00:31:23,210

mum and dad astronomy cast who takes a

639

00:31:26,740 --> 00:31:24,620

facts based journey through the cosmos

640

00:31:28,720 --> 00:31:26,750

as it offers listeners a weekly

641

00:31:32,050 --> 00:31:28,730

discussions on astronomical topics

642

00:31:34,180 --> 00:31:32,060

ranging from planets to cosmology hosted

643

00:31:36,070 --> 00:31:34,190

by Fraser Cain of Universe Today and

644

00:31:38,350 --> 00:31:36,080

myself dr. Pamela gay of Southern

645

00:31:40,180 --> 00:31:38,360

Illinois University Edwardsville this

646

00:31:41,950 --> 00:31:40,190

show brings the questions of an avid

647

00:31:44,650 --> 00:31:41,960

astronomy lover directly to an

648

00:31:46,390 --> 00:31:44,660

astronomer together Fraser and I explore

649

00:31:49,270 --> 00:31:46,400

what is known and being discovered about

650

00:31:51,070 --> 00:31:49,280

the universe around us join us each week

651  
00:31:53,630 --> 00:31:51,080  
as we take a FAC space journey through

652  
00:31:54,060 --> 00:31:53,640  
the cosmos at astronomy cast calm

653  
00:32:04,270 --> 00:31:54,070  
[Laughter]

654  
00:32:09,590 --> 00:32:06,740  
now we bring you part three of our

655  
00:32:11,240 --> 00:32:09,600  
series of interviews with and read the

656  
00:32:13,190 --> 00:32:11,250  
director of the National Center for

657  
00:32:15,740 --> 00:32:13,200  
Science education based in Oakland

658  
00:32:17,840 --> 00:32:15,750  
California this week and will tell us

659  
00:32:22,030 --> 00:32:17,850  
about her work into sequencing the

660  
00:32:25,430 --> 00:32:22,040  
genetic code of the 1918 Spanish flu

661  
00:32:31,580 --> 00:32:25,440  
epidemic this epidemic killed millions

662  
00:32:37,710 --> 00:32:34,010  
climate change we think of permafrost

663  
00:32:39,630 --> 00:32:37,720

and the evolution we think of what's on

664

00:32:43,140 --> 00:32:39,640

the wall up there and I mentioned the

665

00:32:46,670 --> 00:32:43,150

permafrost because it is relevant to the

666

00:32:49,980 --> 00:32:46,680

complete coding sequence of the 1980

667

00:32:51,990 --> 00:32:49,990

1918 influenza virus you have it on your

668

00:32:53,760 --> 00:32:52,000

wall mm-hmm and just real listeners

669

00:32:57,150 --> 00:32:53,770

because it's such a fascinating story

670

00:32:58,410 --> 00:32:57,160

so back when I was a working scientist I

671

00:33:01,680 --> 00:32:58,420

worked at a place called the Armed

672

00:33:03,840 --> 00:33:01,690

Forces Institute of Pathology that has

673

00:33:07,080 --> 00:33:03,850

an archive of tissue samples going back

674

00:33:09,660 --> 00:33:07,090

to the Civil War and my job was to

675

00:33:13,230 --> 00:33:09,670

figure out how to do molecular biology

676  
00:33:15,090 --> 00:33:13,240  
on those old tissue samples and one of

677  
00:33:17,790 --> 00:33:15,100  
the things that we worked on was the

678  
00:33:20,190 --> 00:33:17,800  
1918 flu which killed somewhere between

679  
00:33:22,980 --> 00:33:20,200  
20 and 50 million people worldwide which

680  
00:33:24,900 --> 00:33:22,990  
a lot of people don't know about yeah I

681  
00:33:26,610 --> 00:33:24,910  
think more people know about it now it's

682  
00:33:28,890 --> 00:33:26,620  
gotten a lot more coverage in the last

683  
00:33:30,660 --> 00:33:28,900  
ten years or so but for many years it

684  
00:33:32,790 --> 00:33:30,670  
was forgotten I mean it did happen in

685  
00:33:34,860 --> 00:33:32,800  
the middle of World War one and a lot of

686  
00:33:36,570 --> 00:33:34,870  
yes or at the end of World War one a lot

687  
00:33:38,520 --> 00:33:36,580  
of other things were going on it's also

688  
00:33:40,020 --> 00:33:38,530

known as the Spanish flu yes you've

689

00:33:42,930 --> 00:33:40,030

heard that referred to is that right yes

690

00:33:45,060 --> 00:33:42,940

yes and the reason for that is that when

691

00:33:48,780 --> 00:33:45,070

it broke out in Europe most European

692

00:33:51,690 --> 00:33:48,790

countries had very strict press controls

693

00:33:54,510 --> 00:33:51,700

to try to have good news in their

694

00:33:57,510 --> 00:33:54,520

communities so they because to keep the

695

00:33:59,880 --> 00:33:57,520

keep morale up during the war and so

696

00:34:02,730 --> 00:33:59,890

they didn't allow the press to talk

697

00:34:05,070 --> 00:34:02,740

about the flu and X but Spain didn't

698

00:34:06,630 --> 00:34:05,080

have a didn't have a press embargo so

699

00:34:08,639 --> 00:34:06,640

they did talk about it and they ended up

700

00:34:11,820 --> 00:34:08,649

getting you know well I'm never getting

701  
00:34:13,020 --> 00:34:11,830  
the name tag Don yeah yeah that's why

702  
00:34:14,669 --> 00:34:13,030  
it's called the Spanish flu it didn't

703  
00:34:17,639 --> 00:34:14,679  
originate in Spain it wasn't worse in

704  
00:34:20,669 --> 00:34:17,649  
Spain than anywhere else it just was in

705  
00:34:23,100 --> 00:34:20,679  
the news there okay anyway yeah we

706  
00:34:25,020 --> 00:34:23,110  
decided to see if we could get the

707  
00:34:28,470 --> 00:34:25,030  
genetic sequence of the virus from these

708  
00:34:30,930 --> 00:34:28,480  
tissue samples there were about 77 or 78

709  
00:34:36,120 --> 00:34:30,940  
samples from US soldiers who died of the

710  
00:34:37,399 --> 00:34:36,130  
flu in 1918 and in 1918 viruses were not

711  
00:34:40,500 --> 00:34:37,409  
yet culturable

712  
00:34:44,310 --> 00:34:40,510  
so no samples of the virus

713  
00:34:46,200 --> 00:34:44,320

preserved in laboratories but we hoped

714

00:34:47,820 --> 00:34:46,210

that the sequence of the virus that the

715

00:34:49,200 --> 00:34:47,830

genetic material of the virus would

716

00:34:52,440 --> 00:34:49,210

still be in the lungs of some of the

717

00:34:55,110 --> 00:34:52,450

soldiers who died of the flu so it took

718

00:34:57,870 --> 00:34:55,120

us seven years and we actually got most

719

00:35:01,080 --> 00:34:57,880

of the sequence from an Inuit Alaskan

720

00:35:04,380 --> 00:35:01,090

woman who died of the flu and was buried

721

00:35:09,150 --> 00:35:04,390

in permafrost and so her lungs had been

722

00:35:11,700 --> 00:35:09,160

preserved and yeah it's it's quite a

723

00:35:14,430 --> 00:35:11,710

story we were contacted by a man who had

724

00:35:17,070 --> 00:35:14,440

who had exhumed these bodies back in

725

00:35:19,050 --> 00:35:17,080

1953 after our first favorite paper was

726

00:35:20,700 --> 00:35:19,060

published he offered to go back up and

727

00:35:23,580 --> 00:35:20,710

exhume the bodies again and send us more

728

00:35:25,770 --> 00:35:23,590

tissue which we accepted and when he

729

00:35:27,660 --> 00:35:25,780

went up and opened the gravesite again

730

00:35:29,730 --> 00:35:27,670

there was only one body that was not

731

00:35:32,220 --> 00:35:29,740

decomposed whereas there had been I

732

00:35:34,170 --> 00:35:32,230

can't remember how many victims there

733

00:35:37,110 --> 00:35:34,180

were in Brevig mission I think it was on

734

00:35:40,050 --> 00:35:37,120

the order of 85 they were all decomposed

735

00:35:43,590 --> 00:35:40,060

the permafrost had started to freeze and

736

00:35:45,630 --> 00:35:43,600

thaw it wasn't perma anymore and the

737

00:35:48,750 --> 00:35:45,640

woman the one body that was still intact

738

00:35:52,200 --> 00:35:48,760

was a very obese woman and the Fatheads

739

00:35:54,360 --> 00:35:52,210

had insulated her longest felicitous

740

00:35:56,040 --> 00:35:54,370

whoo-hoo especially in Australia who

741

00:35:58,230 --> 00:35:56,050

don't have a deal with permafrost this

742

00:36:00,510 --> 00:35:58,240

is a region of the world where the

743

00:36:04,230 --> 00:36:00,520

ground is essentially frozen because

744

00:36:06,870 --> 00:36:04,240

it's far enough north before the effects

745

00:36:10,140 --> 00:36:06,880

of the Sun never quite to thaw the ice

746

00:36:12,390 --> 00:36:10,150

in the ground but we hear stories of the

747

00:36:15,300 --> 00:36:12,400

permafrost is now being directly

748

00:36:17,370 --> 00:36:15,310

affected by a global line yeah yeah so

749

00:36:20,430 --> 00:36:17,380

even back in 2000 there were signs that

750

00:36:24,030 --> 00:36:20,440

the fraud that this area was not staying

751  
00:36:26,160 --> 00:36:24,040  
frozen 365 days a year year after year

752  
00:36:27,270 --> 00:36:26,170  
after year that there had been thaw yeah

753  
00:36:28,860 --> 00:36:27,280  
cycles and that may have had something

754  
00:36:31,020 --> 00:36:28,870  
to do with it having been opened before

755  
00:36:33,210 --> 00:36:31,030  
I don't think you know that the grave

756  
00:36:37,350 --> 00:36:33,220  
had been opened before it was um after

757  
00:36:42,120 --> 00:36:37,360  
the war after that flu that the US Army

758  
00:36:44,970 --> 00:36:42,130  
came in to Alaska and helped bury all of

759  
00:36:46,950 --> 00:36:44,980  
the dead it was devastating in the in

760  
00:36:49,650 --> 00:36:46,960  
the villages that got - it was

761  
00:36:52,530 --> 00:36:49,660  
devastating and Alaska was not yet a US

762  
00:36:54,480 --> 00:36:52,540  
state didn't become a state until 1959

763  
00:36:58,650 --> 00:36:54,490

right but the army did come in

764

00:37:01,890 --> 00:36:58,660

and bulldoze these mass graves that are

765

00:37:03,750 --> 00:37:01,900

found in in villages all over including

766

00:37:05,670 --> 00:37:03,760

Brevig mission where our sample was

767

00:37:08,400 --> 00:37:05,680

found and it's a it's fascinating you

768

00:37:11,460 --> 00:37:08,410

gaze up on to the world there's a lovely

769

00:37:14,070 --> 00:37:11,470

picture of the genetic sequence but it

770

00:37:15,800 --> 00:37:14,080

was quickly evolving yes and flu is

771

00:37:20,100 --> 00:37:15,810

always quickly evolving that's its

772

00:37:23,370 --> 00:37:20,110

survival strategy that it its gene

773

00:37:27,900 --> 00:37:23,380

copying machinery is quite inaccurate

774

00:37:31,320 --> 00:37:27,910

and so every time it makes lots of

775

00:37:33,780 --> 00:37:31,330

mistakes and and it doesn't I mean it's

776

00:37:38,190 --> 00:37:33,790

a virus so it doesn't have emotions but

777

00:37:40,440 --> 00:37:38,200

it doesn't care if you know some large

778

00:37:44,010 --> 00:37:40,450

number of the particles viral particles

779

00:37:45,660 --> 00:37:44,020

that are formed or aren't complete or if

780

00:37:47,480 --> 00:37:45,670

they have a mutation that means that

781

00:37:52,680 --> 00:37:47,490

they won't be able to infect the next

782

00:37:55,109 --> 00:37:52,690

yeah it's you know if it has one that's

783

00:37:58,080 --> 00:37:55,119

that's good then it can get into a cell

784

00:38:02,040 --> 00:37:58,090

and it can reproduce and and it can keep

785

00:38:04,260 --> 00:38:02,050

the virus spreading yeah so that's why

786

00:38:07,890 --> 00:38:04,270

you saying before every year there is a

787

00:38:09,480 --> 00:38:07,900

different strain a year there's a

788

00:38:11,430 --> 00:38:09,490

slightly different vaccine because it

789

00:38:12,900 --> 00:38:11,440

evolves right that the Selective

790

00:38:15,030 --> 00:38:12,910

pressure on that the evolutionary

791

00:38:17,760 --> 00:38:15,040

Selective pressure on it is for the the

792

00:38:19,620 --> 00:38:17,770

bits of the virus that stick up are the

793

00:38:22,410 --> 00:38:19,630

parts of the virus that the immune

794

00:38:24,359 --> 00:38:22,420

system sees and so the immune system

795

00:38:28,890 --> 00:38:24,369

makes antibodies that are very very

796

00:38:30,900 --> 00:38:28,900

specific to those spikes on that on the

797

00:38:33,210 --> 00:38:30,910

surface of the virus so if the virus

798

00:38:36,800 --> 00:38:33,220

happens to get a mutation that changes

799

00:38:40,620 --> 00:38:36,810

the shape of that spike slightly then

800

00:38:42,330 --> 00:38:40,630

that particular viral particle can

801  
00:38:45,599 --> 00:38:42,340  
infect somebody who is infected by the

802  
00:38:47,730 --> 00:38:45,609  
previous Wow virus because that if the

803  
00:38:50,070 --> 00:38:47,740  
antibodies are not gonna be as good a

804  
00:38:52,140 --> 00:38:50,080  
match yeah yeah so those are the ones

805  
00:38:54,090 --> 00:38:52,150  
that survive yeah and those are the ones

806  
00:38:57,030 --> 00:38:54,100  
then that you get the next year and so

807  
00:38:59,910 --> 00:38:57,040  
they're constantly monitoring the virus

808  
00:39:01,590 --> 00:38:59,920  
over the course of the offseason to see

809  
00:39:03,240 --> 00:39:01,600  
what changes are emerging and then they

810  
00:39:06,780 --> 00:39:03,250  
change they make a decision and I

811  
00:39:07,650 --> 00:39:06,790  
believe it's February what strain

812  
00:39:10,620 --> 00:39:07,660  
they're going to put in the

813  
00:39:12,390 --> 00:39:10,630

next year's vaccine based on what's

814

00:39:14,760 --> 00:39:12,400

emerging so they may keep the old one if

815

00:39:16,950 --> 00:39:14,770

it looks like a new one hasn't really

816

00:39:18,809 --> 00:39:16,960

caught hold but if what if it looks like

817

00:39:20,190 --> 00:39:18,819

a new strain has emerged that is

818

00:39:22,349 --> 00:39:20,200

different enough from the old one that

819

00:39:24,510 --> 00:39:22,359

people's immunity isn't working then

820

00:39:25,710 --> 00:39:24,520

they put that strain into the vaccine

821

00:39:28,859 --> 00:39:25,720

for the next year so it's a very

822

00:39:30,599 --> 00:39:28,869

imperfect science well it is but it's

823

00:39:33,750 --> 00:39:30,609

certainly developing but from the the

824

00:39:37,200 --> 00:39:33,760

virus's point of view it's it behooves

825

00:39:39,930 --> 00:39:37,210

it to have a poor mechanism exactly yeah

826

00:39:42,029 --> 00:39:39,940

and so what we found what the 1918 flu

827

00:39:43,620 --> 00:39:42,039

is those there's about I can't remember

828

00:39:45,420 --> 00:39:43,630

it's been a long time since I was really

829

00:39:48,930 --> 00:39:45,430

deep in the literature I think they're

830

00:39:51,539 --> 00:39:48,940

about 20 amino acids that are on the

831

00:39:54,839 --> 00:39:51,549

surface of that spike that sticks out

832

00:39:58,440 --> 00:39:54,849

from the surface of the virus and that

833

00:40:00,420 --> 00:39:58,450

the sort of home species for for

834

00:40:03,120 --> 00:40:00,430

influenza viruses as wild birds ducks

835

00:40:04,890 --> 00:40:03,130

and geese and it circulates in ducks and

836

00:40:07,349 --> 00:40:04,900

geese and it doesn't really make them

837

00:40:10,079 --> 00:40:07,359

sick it's they're very well adapted to

838

00:40:12,240 --> 00:40:10,089

ducks and geese and so those those amino

839

00:40:13,740 --> 00:40:12,250

acids don't change because there's not

840

00:40:17,819 --> 00:40:13,750

really big immune pressure on the virus

841

00:40:19,470 --> 00:40:17,829

so those if you look at those twenty

842

00:40:21,359 --> 00:40:19,480

amino acids you can make a very good

843

00:40:23,339 --> 00:40:21,369

guess as to where this virus came from

844

00:40:25,410 --> 00:40:23,349

did it come from birds did it come from

845

00:40:26,970 --> 00:40:25,420

pigs where there is immune pressure on

846

00:40:29,700 --> 00:40:26,980

the virus to or from humans

847

00:40:32,039 --> 00:40:29,710

swine flu swine flu yeah yeah swine's

848

00:40:34,529 --> 00:40:32,049

can be infected by both avian strains

849

00:40:36,000 --> 00:40:34,539

and human strains so for many years they

850

00:40:38,730 --> 00:40:36,010

were thought to be the mixing vessel

851

00:40:41,220 --> 00:40:38,740

where you get new varieties of flu

852

00:40:42,480 --> 00:40:41,230

developing and there's some evidence

853

00:40:44,460 --> 00:40:42,490

that that's true but there's also

854

00:40:47,789 --> 00:40:44,470

evidence that it can happen just in

855

00:40:50,940 --> 00:40:47,799

humans hmm anyway the 1918 flu those 20

856

00:40:53,700 --> 00:40:50,950

amino acids were all the avian strain

857

00:40:55,440 --> 00:40:53,710

which they all matched sort of typical

858

00:40:58,289 --> 00:40:55,450

avian viruses so that suggests that had

859

00:41:01,430 --> 00:40:58,299

never circulated in humans before and

860

00:41:04,680 --> 00:41:01,440

maybe that's why it was so right

861

00:41:07,140 --> 00:41:04,690

ridiculously muralists not the word

862

00:41:10,289 --> 00:41:07,150

contagious contagious that nobody had

863

00:41:13,829 --> 00:41:10,299

any immunity to it at all yeah and just

864

00:41:15,390 --> 00:41:13,839

to wrap up this talk about the flu I've

865

00:41:17,490 --> 00:41:15,400

had the flu you've had the flu though of

866

00:41:19,470 --> 00:41:17,500

the years it's around Pleasant it's not

867

00:41:20,750 --> 00:41:19,480

a cold it's a down thing you feel

868

00:41:25,370 --> 00:41:20,760

dreadful you wiped out

869

00:41:28,910 --> 00:41:25,380

for a week or more and more really how

870

00:41:31,610 --> 00:41:28,920

does it actually kill people and why did

871

00:41:34,250 --> 00:41:31,620

were so many people killed by it back

872

00:41:35,840 --> 00:41:34,260

then I mean why didn't they just get the

873

00:41:37,580 --> 00:41:35,850

flu and feel dreadful for a couple of

874

00:41:39,830 --> 00:41:37,590

weeks and recover the vast majority of

875

00:41:43,100 --> 00:41:39,840

them did did they yeah Ryan that it

876

00:41:45,200 --> 00:41:43,110

killed some it depends the numbers are

877

00:41:49,240 --> 00:41:45,210

not perfect but about two percent of the

878

00:41:51,290 --> 00:41:49,250

people who were symptomatic died uh

879

00:41:53,120 --> 00:41:51,300

generally about thirty percent of people

880

00:41:55,850 --> 00:41:53,130

who get the flu don't even have any

881

00:41:57,560 --> 00:41:55,860

symptoms really about 70 percent of

882

00:42:00,890 --> 00:41:57,570

symptoms and those can vary from a very

883

00:42:03,470 --> 00:42:00,900

mild flu to what you're describing this

884

00:42:07,700 --> 00:42:03,480

kind of really miserable for a couple of

885

00:42:10,430 --> 00:42:07,710

weeks to dying most of the people who

886

00:42:13,820 --> 00:42:10,440

died didn't die directly of the virus

887

00:42:15,980 --> 00:42:13,830

they died of a bacterial pneumonia the

888

00:42:18,590 --> 00:42:15,990

virus comes in in it and then it infects

889

00:42:22,160 --> 00:42:18,600

the epithelium cells that line your

890

00:42:25,130 --> 00:42:22,170

respiratory tract and it kills them and

891

00:42:28,790 --> 00:42:25,140

so it leaves your respiratory tract

892

00:42:29,450 --> 00:42:28,800

really vulnerable to bacterial infection

893

00:42:33,050 --> 00:42:29,460

all right

894

00:42:34,820 --> 00:42:33,060

so something like ninety probably more

895

00:42:36,740 --> 00:42:34,830

probably 95 percent of people who died

896

00:42:38,750 --> 00:42:36,750

in 1918 actually died of a bacterial

897

00:42:41,570 --> 00:42:38,760

pneumonia but about five percent of

898

00:42:45,260 --> 00:42:41,580

people got this very they call it

899

00:42:47,240 --> 00:42:45,270

fulminant viral pneumonia where instead

900

00:42:50,300 --> 00:42:47,250

of just killing the epithelium in your

901  
00:42:53,650 --> 00:42:50,310  
in the nasal passages it got deep into

902  
00:42:56,870 --> 00:42:53,660  
the lungs that it denuded the

903  
00:42:59,840 --> 00:42:56,880  
capillaries in the base of the lungs the

904  
00:43:01,100 --> 00:42:59,850  
lungs flooded with liquid and basically

905  
00:43:06,500 --> 00:43:01,110  
the victims drowned

906  
00:43:08,810 --> 00:43:06,510  
it was very Wow violent rapid death the

907  
00:43:11,270 --> 00:43:08,820  
victims turned a color they called

908  
00:43:13,280 --> 00:43:11,280  
heliotrope it's like a lavender blue

909  
00:43:16,280 --> 00:43:13,290  
color they called it heliotrope cyanosis

910  
00:43:18,080 --> 00:43:16,290  
this was super fascinating about doing

911  
00:43:20,030 --> 00:43:18,090  
that study as we had to go back and read

912  
00:43:21,920 --> 00:43:20,040  
all of the studies about what was going

913  
00:43:23,420 --> 00:43:21,930

on what can we learn from what they saw

914

00:43:25,370 --> 00:43:23,430

clinically what can we learn from what

915

00:43:28,130 --> 00:43:25,380

they saw epidemiologically in different

916

00:43:30,470 --> 00:43:28,140

towns anyway it was anyway some number

917

00:43:30,980 --> 00:43:30,480

of people died of this primary viral

918

00:43:33,830 --> 00:43:30,990

pneumonia

919

00:43:36,050 --> 00:43:33,840

and fortunately for us a couple of the

920

00:43:38,109 --> 00:43:36,060

cases in those archives at the AFIP

921

00:43:39,800 --> 00:43:38,119

were from people who died of the primary

922

00:43:41,510 --> 00:43:39,810

pneumonia because otherwise we would

923

00:43:44,930 --> 00:43:41,520

never have gotten any sense of the virus

924

00:43:46,850 --> 00:43:44,940

okay yeah it's very what a fascinating

925

00:43:48,859 --> 00:43:46,860

story it was it was a new just a

926

00:43:50,240 --> 00:43:48,869

privilege to work on it Wow

927

00:43:52,190 --> 00:43:50,250

well and it's so it's been so

928

00:43:54,020 --> 00:43:52,200

fascinating I love coming back here I

929

00:43:55,820 --> 00:43:54,030

don't care where your office is it could

930

00:43:57,950 --> 00:43:55,830

be anywhere in the world it's it's a

931

00:43:59,210 --> 00:43:57,960

wonderful thing to be in the office of

932

00:44:01,520 --> 00:43:59,220

the National Center of Science education

933

00:44:05,570 --> 00:44:01,530

how can people find out more where can

934

00:44:07,730 --> 00:44:05,580

the NCSE calm on the web we have lots of

935

00:44:08,600 --> 00:44:07,740

information there and of course if you

936

00:44:11,390 --> 00:44:08,610

become a member

937

00:44:13,609 --> 00:44:11,400

hmm you can get our newsletter every

938

00:44:15,320 --> 00:44:13,619

three months and the newsletter now

939

00:44:17,270 --> 00:44:15,330

really focuses on what are we doing for

940

00:44:19,400 --> 00:44:17,280

teachers or how are our booster clubs

941

00:44:21,620 --> 00:44:19,410

doing what kinds of flare-ups have we

942

00:44:25,100 --> 00:44:21,630

dealt with and and what's been the

943

00:44:26,510 --> 00:44:25,110

outcome of these legislation and across

944

00:44:28,730 --> 00:44:26,520

the United States and sometimes around

945

00:44:33,350 --> 00:44:28,740

the world so it that the newsletter is

946

00:44:35,690 --> 00:44:33,360

is a great way to keep up to date with

947

00:44:38,390 --> 00:44:35,700

what we're doing and then of course the

948

00:44:40,430 --> 00:44:38,400

website is very rich yeah well I think

949

00:44:42,140 --> 00:44:40,440

it's applicable for science teachers no

950

00:44:44,060 --> 00:44:42,150

matter where you are from Australia to

951  
00:44:46,190 --> 00:44:44,070  
the United States to to everywhere

952  
00:44:48,170 --> 00:44:46,200  
mm-hmm I think any science teacher would

953  
00:44:50,900 --> 00:44:48,180  
do well to visit your site once again

954  
00:44:54,480 --> 00:44:50,910  
and pleasure to be here thank you it's

955  
00:44:59,740 --> 00:44:56,849  
[Music]

956  
00:45:02,109 --> 00:44:59,750  
join us next week for the final in our

957  
00:45:05,050 --> 00:45:02,119  
series of interviews with talks van Reed

958  
00:45:06,940 --> 00:45:05,060  
where and we'll discuss the community

959  
00:45:08,820 --> 00:45:06,950  
outreach of the National Center for

960  
00:45:22,520 --> 00:45:08,830  
Science education

961  
00:45:25,440 --> 00:45:22,530  
[Music]

962  
00:45:28,320 --> 00:45:25,450  
and now direct from the cafe and

963  
00:45:30,990 --> 00:45:28,330

Australia's Science Channel its brouhaha

964

00:45:39,330 --> 00:45:31,000

science in less time than it takes to

965

00:45:41,400 --> 00:45:39,340

order a coffee with Ben Lewis if pop

966

00:45:43,650 --> 00:45:41,410

culture told me one thing is the

967

00:45:45,270 --> 00:45:43,660

Tyrannosaurus Rex was a fast runner that

968

00:45:47,730 --> 00:45:45,280

could easily chase down humans in

969

00:45:50,700 --> 00:45:47,740

Sprint's off but like so much my

970

00:45:52,710 --> 00:45:50,710

childhood pop culture was wrong because

971

00:45:55,890 --> 00:45:52,720

it turns out the t-rex was nowhere near

972

00:45:57,440 --> 00:45:55,900

as fast as we've been told by simulating

973

00:45:59,280 --> 00:45:57,450

the scales in the movement of a t-rex

974

00:46:00,870 --> 00:45:59,290

researchers have discovered that the

975

00:46:03,330 --> 00:46:00,880

quickest that could have moved was a

976  
00:46:05,610 --> 00:46:03,340  
fast walk topping out at about 20

977  
00:46:07,650 --> 00:46:05,620  
kilometres an hour if it had tried to

978  
00:46:09,300 --> 00:46:07,660  
run the forces through us leg bones

979  
00:46:11,640 --> 00:46:09,310  
would have been too much and they would

980  
00:46:14,340 --> 00:46:11,650  
have snap so less like a menacing run

981  
00:46:16,440 --> 00:46:14,350  
more like a power walk but that's okay

982  
00:46:18,360 --> 00:46:16,450  
because t-rex didn't need to be a quick

983  
00:46:20,820 --> 00:46:18,370  
runner they just needed to be quicker

984  
00:46:22,590 --> 00:46:20,830  
than their prey and 20 kilometres an

985  
00:46:24,600 --> 00:46:22,600  
hour is still pretty quick by human

986  
00:46:26,700 --> 00:46:24,610  
standards it's about the same speed that

987  
00:46:29,370 --> 00:46:26,710  
most people can sprint so you need to be

988  
00:46:31,200 --> 00:46:29,380

on your game to get away from one so if

989

00:46:34,200 --> 00:46:31,210

you do find yourself being chased by a

990

00:46:37,590 --> 00:46:34,210

t-rex forget run out runner just jump

991

00:47:02,840 --> 00:46:40,590

for more brouhaha and Australian science

992

00:47:15,670 --> 00:47:02,850

visit [www.secretgarden.eu.com](http://www.secretgarden.eu.com)

993

00:47:15,680 --> 00:47:30,980

[Music]

994

00:47:37,230 --> 00:47:35,040

preventable diseases Jane Hansen from

995

00:47:40,190 --> 00:47:37,240

The Daily Telegraph wrote an article

996

00:47:42,810 --> 00:47:40,200

which appeared online on July the 23rd

997

00:47:45,660 --> 00:47:42,820

2017 titled

998

00:47:50,240 --> 00:47:45,670

patients lacking vaccination spend on

999

00:47:53,460 --> 00:47:50,250

average nearly a week in hospital quote

1000

00:47:55,950 --> 00:47:53,470

anti vaccines and vaccinations slackers

1001  
00:47:57,840 --> 00:47:55,960  
suffering from preventable diseases are

1002  
00:48:00,420 --> 00:47:57,850  
clogging Australia's hospitals and

1003  
00:48:03,390 --> 00:48:00,430  
putting a massive burden on the public

1004  
00:48:06,000 --> 00:48:03,400  
health purse people with vaccine

1005  
00:48:07,800 --> 00:48:06,010  
preventable diseases spent a total of

1006  
00:48:09,660 --> 00:48:07,810  
three hundred and thirty eight thousand

1007  
00:48:12,930 --> 00:48:09,670  
six hundred and eighty six days in

1008  
00:48:17,880 --> 00:48:12,940  
hospital across the nation in 2015 to

1009  
00:48:20,520 --> 00:48:17,890  
2016 new figures reveal and in New South

1010  
00:48:22,320 --> 00:48:20,530  
Wales three of the top four areas where

1011  
00:48:24,390 --> 00:48:22,330  
preventable diseases put people in

1012  
00:48:27,090 --> 00:48:24,400  
hospital we're in northern New South

1013  
00:48:31,230 --> 00:48:27,100

Wales communities where vaccination

1014

00:48:33,210 --> 00:48:31,240

rates are notoriously low the average

1015

00:48:36,090 --> 00:48:33,220

length of stay in hospital for a vaccine

1016

00:48:38,610 --> 00:48:36,100

preventable disease was six point seven

1017

00:48:40,680 --> 00:48:38,620

days per patient according to the

1018

00:48:43,530 --> 00:48:40,690

Australian Institute of Health and

1019

00:48:45,150 --> 00:48:43,540

Welfare new healthy communities report

1020

00:48:50,820 --> 00:48:45,160

in to potentially preventable

1021

00:48:51,520 --> 00:48:50,830

hospitalizations in 2015 to 2016 New

1022

00:48:53,500 --> 00:48:51,530

South Wales

1023

00:48:56,670 --> 00:48:53,510

health figures estimate the average stay

1024

00:49:01,660 --> 00:48:56,680

in hospital for one night is between

1025

00:49:04,180 --> 00:49:01,670

\$1,100 and \$1,500 making the impulse on

1026  
00:49:06,400 --> 00:49:04,190  
the public purse for vaccine preventable

1027  
00:49:09,090 --> 00:49:06,410  
diseases up to five hundred and eight

1028  
00:49:12,160 --> 00:49:09,100  
million dollars a year

1029  
00:49:15,220 --> 00:49:12,170  
Liz Moore pediatrician dr. Kris Engel

1030  
00:49:17,320 --> 00:49:15,230  
said he has seen firsthand the impact of

1031  
00:49:19,090 --> 00:49:17,330  
vaccine preventable diseases in children

1032  
00:49:22,690 --> 00:49:19,100  
who had not been vaccinated in the

1033  
00:49:24,790 --> 00:49:22,700  
region this data reflects other data

1034  
00:49:26,740 --> 00:49:24,800  
from earlier decades in countries like

1035  
00:49:29,410 --> 00:49:26,750  
Japan who stopped vaccinating for

1036  
00:49:32,140 --> 00:49:29,420  
certain diseases and then thought there

1037  
00:49:34,330 --> 00:49:32,150  
was a spike in infectious diseases so it

1038  
00:49:36,460 --> 00:49:34,340

is expected giving the low rates of

1039

00:49:40,750 --> 00:49:36,470

vaccination in northern New South Wales

1040

00:49:42,610 --> 00:49:40,760

dr. Engel said earlier this year the

1041

00:49:45,340 --> 00:49:42,620

rate of whooping cough in northern New

1042

00:49:47,620 --> 00:49:45,350

South Wales health district was 9 times

1043

00:49:51,100 --> 00:49:47,630

that of the neighboring Mid North Coast

1044

00:49:54,100 --> 00:49:51,110

health district we certainly see

1045

00:49:56,410 --> 00:49:54,110

pertussis whooping cough and babies that

1046

00:49:58,780 --> 00:49:56,420

need to be hospitalized but we've also

1047

00:50:03,130 --> 00:49:58,790

seen tetanus in an unvaccinated child

1048

00:50:04,930 --> 00:50:03,140

dr. Engel said Marcus Bernardo was

1049

00:50:07,540 --> 00:50:04,940

hospitalized for whooping cough in

1050

00:50:10,270 --> 00:50:07,550

February at the tender age of 14 months

1051  
00:50:12,550 --> 00:50:10,280  
four months shy of his third booster

1052  
00:50:16,030 --> 00:50:12,560  
shot for the Killa cough which severely

1053  
00:50:18,580 --> 00:50:16,040  
affects the young it got really bad and

1054  
00:50:21,250 --> 00:50:18,590  
they kept him in isolation he was very

1055  
00:50:23,920 --> 00:50:21,260  
distressed mum Sandra Bernardo from

1056  
00:50:25,780 --> 00:50:23,930  
riedel mare said whooping cough is one

1057  
00:50:28,060 --> 00:50:25,790  
of the hardest diseases to control by

1058  
00:50:30,670 --> 00:50:28,070  
vaccination and relies on herd immunity

1059  
00:50:34,000 --> 00:50:30,680  
of more than 90 percent to reduce the

1060  
00:50:37,120 --> 00:50:34,010  
disease spread dr. Rachel heap is an

1061  
00:50:39,250 --> 00:50:37,130  
adult intensive care specialist who also

1062  
00:50:41,020 --> 00:50:39,260  
works in the region and is a spokeswoman

1063  
00:50:43,390 --> 00:50:41,030

for the Northern Rivers vaccine

1064

00:50:45,790 --> 00:50:43,400

supporters group I'm saddened by the

1065

00:50:48,010 --> 00:50:45,800

figures but unfortunately I'm not

1066

00:50:50,800 --> 00:50:48,020

surprised because we have some of the

1067

00:50:53,590 --> 00:50:50,810

lowest vaccination rates so we have the

1068

00:50:56,230 --> 00:50:53,600

highest number of hospitalizations each

1069

00:50:57,700 --> 00:50:56,240

week I see people in intensive care with

1070

00:51:01,450 --> 00:50:57,710

diseases that could have been prevented

1071

00:51:03,790 --> 00:51:01,460

by vaccination like influenza we see

1072

00:51:05,050 --> 00:51:03,800

otherwise healthy people in ICU with

1073

00:51:09,460 --> 00:51:05,060

influenza and

1074

00:51:12,550 --> 00:51:09,470

some don't survive doctor heap said last

1075

00:51:15,340 --> 00:51:12,560

year the child death review team found

1076

00:51:17,320 --> 00:51:15,350

that a total of 54 children had died of

1077

00:51:20,860 --> 00:51:17,330

vaccine preventable diseases in New

1078

00:51:23,530 --> 00:51:20,870

South Wales in the past decade dr.

1079

00:51:25,690 --> 00:51:23,540

Christine McCartney deputy director of

1080

00:51:28,600 --> 00:51:25,700

the National Center for immunization and

1081

00:51:31,120 --> 00:51:28,610

research surveillance said of the 54

1082

00:51:33,310 --> 00:51:31,130

children who died almost half were

1083

00:51:36,310 --> 00:51:33,320

considered preventable if vaccinations

1084

00:51:39,370 --> 00:51:36,320

had been kept up-to-date if you'd like

1085

00:51:42,940 --> 00:51:39,380

to see the data for your area go to my

1086

00:51:45,670 --> 00:51:42,950

healthy communities gov dot a U on the

1087

00:51:47,950 --> 00:51:45,680

home page there is a link for

1088

00:51:49,840 --> 00:51:47,960

interactive data for potentially

1089

00:51:54,310 --> 00:51:49,850

preventable hospitalizations in

1090

00:51:57,280 --> 00:51:54,320

Australia that's it for me for this week

1091

00:51:59,140 --> 00:51:57,290

until next time this is Heidi Robertson

1092

00:52:17,080 --> 00:51:59,150

from the Northern Rivers vaccination

1093

00:52:20,200 --> 00:52:17,090

supporters signing off from the dawn of

1094

00:52:22,930 --> 00:52:20,210

time one podcast has unlocked the

1095

00:52:25,330 --> 00:52:22,940

secrets of science and technology to

1096

00:52:27,520 --> 00:52:25,340

enrich the lives of billions and now

1097

00:52:30,130 --> 00:52:27,530

after a year where they've unlocked the

1098

00:52:32,830 --> 00:52:30,140

golden age of knowledge they're about to

1099

00:52:35,830 --> 00:52:32,840

hit warp speed and go stratospheric

1100

00:52:37,690 --> 00:52:35,840

holed up on oh no Ross and Carrie we

1101

00:52:39,910 --> 00:52:37,700

don't make extraordinary claims we

1102

00:52:42,070 --> 00:52:39,920

investigate them we go undercover with

1103

00:52:44,170 --> 00:52:42,080

fringe religious groups investigate

1104

00:52:46,120 --> 00:52:44,180

paranormal claims and we participate in

1105

00:52:48,670 --> 00:52:46,130

pseudo scientific medical treatments and

1106

00:52:52,720 --> 00:52:48,680

then report our findings to you and yes

1107

00:52:55,780 --> 00:52:52,730

we've even investigated Scientology new

1108

00:52:58,990 --> 00:52:55,790

episodes every month at maximum fun org

1109

00:53:00,690 --> 00:52:59,000

oh no Ross and Carrie they show up so

1110

00:53:11,610 --> 00:53:00,700

you don't have to

1111

00:53:15,730 --> 00:53:14,050

thank you for listening to the skeptic

1112

00:53:17,200 --> 00:53:15,740

zone what a packed episode it was this

1113

00:53:19,660 --> 00:53:17,210

week and as I said at the top of the

1114

00:53:22,630 --> 00:53:19,670

show there are even more updates to this

1115

00:53:25,170 --> 00:53:22,640

backstory so many in fact that I'm gonna

1116

00:53:28,720 --> 00:53:25,180

add some links to the show notes the

1117

00:53:30,730 --> 00:53:28,730

radio announcer in Melbourne Neil

1118

00:53:35,020 --> 00:53:30,740

Mitchell ran an interview with John

1119

00:53:38,730 --> 00:53:35,030

Cunningham about about the VAX movie and

1120

00:53:41,940 --> 00:53:38,740

John was spat at apparently by the

1121

00:53:44,320 --> 00:53:41,950

anti-vaxxers here in Sydney the

1122

00:53:47,530 --> 00:53:44,330

conservative I will say radio

1123

00:53:49,750 --> 00:53:47,540

commentator Ray Hadley made a very

1124

00:53:51,400 --> 00:53:49,760

strong statement about the anti-vaxxers

1125

00:53:55,090 --> 00:53:51,410

saying he would never have them on his

1126  
00:53:56,860 --> 00:53:55,100  
program so he told them not to bother

1127  
00:53:58,510 --> 00:53:56,870  
writing or calling he just won't have

1128  
00:54:01,240 --> 00:53:58,520  
them on the show which was a very strong

1129  
00:54:04,510 --> 00:54:01,250  
statement indeed the Sun Herald

1130  
00:54:07,150 --> 00:54:04,520  
newspaper from Melbourne published a

1131  
00:54:11,560 --> 00:54:07,160  
whole story about the cult of the

1132  
00:54:13,720 --> 00:54:11,570  
anti-vaccination movement including the

1133  
00:54:16,810 --> 00:54:13,730  
fact that at these screenings of the

1134  
00:54:21,730 --> 00:54:16,820  
movie VAX one of the books being flogged

1135  
00:54:27,630 --> 00:54:21,740  
it was Melanie's marvellous measles the

1136  
00:54:31,600 --> 00:54:27,640  
book that encourages children to get

1137  
00:54:34,090 --> 00:54:31,610  
infected with measles it's something out

1138  
00:54:36,790 --> 00:54:34,100

of Monty Python really is well I wish it

1139

00:54:38,890 --> 00:54:36,800

was that funny and finally this has been

1140

00:54:41,260 --> 00:54:38,900

brought to my attention this is a press

1141

00:54:45,220 --> 00:54:41,270

release from the honorable Christian

1142

00:54:49,170 --> 00:54:45,230

Porter MP Minister for Social Services

1143

00:54:53,140 --> 00:54:49,180

and the media release says no job no pay

1144

00:54:57,420 --> 00:54:53,150

lifts immunization rates published on

1145

00:55:00,430 --> 00:54:57,430

the 31st of July 2016 and briefly the

1146

00:55:02,470 --> 00:55:00,440

the media release says more than five

1147

00:55:05,440 --> 00:55:02,480

thousand seven hundred and thirty-eight

1148

00:55:08,860 --> 00:55:05,450

children whose parents are receiving

1149

00:55:12,220 --> 00:55:08,870

child care payments and were previously

1150

00:55:13,810 --> 00:55:12,230

registered as vaccine objectors have had

1151

00:55:16,710 --> 00:55:13,820

their children immunized since the

1152

00:55:18,330 --> 00:55:16,720

launch of the government's no job no pay

1153

00:55:20,200 --> 00:55:18,340

policy

1154

00:55:22,780 --> 00:55:20,210

importantly since the launch of the

1155

00:55:26,950 --> 00:55:22,790

campaign on the 1st of January 2016

1156

00:55:28,990 --> 00:55:26,960

more than 148 thousand children who were

1157

00:55:31,090 --> 00:55:29,000

not up to date with their immunizations

1158

00:55:32,890 --> 00:55:31,100

on the Australian childhood immunization

1159

00:55:36,100 --> 00:55:32,900

register and now meeting the

1160

00:55:37,480 --> 00:55:36,110

requirements the press release goes on

1161

00:55:42,730 --> 00:55:37,490

but I'll link to that in this week's

1162

00:55:45,040 --> 00:55:42,740

show notes so we do fear that

1163

00:55:49,360 --> 00:55:45,050

impressionable young parents and others

1164

00:55:53,050 --> 00:55:49,370

will be swayed by the utter nonsense

1165

00:55:56,100 --> 00:55:53,060

portrayed in this vac stir movie as you

1166

00:55:59,230 --> 00:55:56,110

heard from the audio clips this whole

1167

00:56:02,140 --> 00:55:59,240

argument put up by the anti-vaxxers that

1168

00:56:04,540 --> 00:56:02,150

they just pro-choice is absurd of course

1169

00:56:08,410 --> 00:56:04,550

they're anti vaccination vehemently anti

1170

00:56:10,540 --> 00:56:08,420

vaccination they they live in the rabbit

1171

00:56:13,870 --> 00:56:10,550

hole of conspiracy theories on top of

1172

00:56:18,370 --> 00:56:13,880

conspiracy theorists and to liken them

1173

00:56:20,350 --> 00:56:18,380

to a cult is actually not unreasonable

1174

00:56:24,070 --> 00:56:20,360

it is not an unreasonable stance to take

1175

00:56:26,190 --> 00:56:24,080

to likin these people to a cult and it

1176  
00:56:29,080 --> 00:56:26,200  
would be easy to get downhearted but

1177  
00:56:32,920 --> 00:56:29,090  
according to that press release the

1178  
00:56:33,490 --> 00:56:32,930  
immunization rates are up so in your

1179  
00:56:36,040 --> 00:56:33,500  
face

1180  
00:56:39,040 --> 00:56:36,050  
Australian vaccination skeptics Network

1181  
00:56:41,620 --> 00:56:39,050  
in fact well coming up on next week's

1182  
00:56:44,110 --> 00:56:41,630  
show a special extended Maynard report

1183  
00:56:46,570 --> 00:56:44,120  
may not have skeptics in the pub and we

1184  
00:56:48,640 --> 00:56:46,580  
had a great time and Sydney skeptics in

1185  
00:56:51,580 --> 00:56:48,650  
the pub just a few days ago we had a

1186  
00:56:54,130 --> 00:56:51,590  
series of psychic tests we had Zener

1187  
00:56:55,690 --> 00:56:54,140  
cards we had water divining and we had

1188  
00:56:59,170 --> 00:56:55,700

predicting the future with heads and

1189

00:57:02,170 --> 00:56:59,180

tails a famous sir or a favorite of pub

1190

00:57:03,970 --> 00:57:02,180

games or party games and there were

1191

00:57:08,500 --> 00:57:03,980

prizes along the way and lots of people

1192

00:57:11,650 --> 00:57:08,510

showed up to try their skill at psychic

1193

00:57:14,230 --> 00:57:11,660

at the psychic tests anyway Maynard was

1194

00:57:16,630 --> 00:57:14,240

our man on the spot doing running

1195

00:57:19,120 --> 00:57:16,640

commentary along the way and talking to

1196

00:57:21,550 --> 00:57:19,130

people involved in doing the tests and

1197

00:57:23,470 --> 00:57:21,560

taking the tests a lot of fun skeptics

1198

00:57:25,960 --> 00:57:23,480

in the pub in here in Sydney is a lot of

1199

00:57:28,390 --> 00:57:25,970

fun and I encourage everybody who runs

1200

00:57:30,850 --> 00:57:28,400

as skeptics in the pub or who would like

1201  
00:57:34,540 --> 00:57:30,860  
to have a listen to next week's show to

1202  
00:57:36,250 --> 00:57:34,550  
see see if you can get some ideas and to

1203  
00:57:39,040 --> 00:57:36,260  
hear some of the fun we have at scale

1204  
00:57:40,990 --> 00:57:39,050  
Dick's in the pub before I go for those

1205  
00:57:43,390 --> 00:57:41,000  
people have written in to request it

1206  
00:57:46,060 --> 00:57:43,400  
let's have another psychic test

1207  
00:57:47,710 --> 00:57:46,070  
ourselves let's do the dice game and for

1208  
00:57:50,460 --> 00:57:47,720  
those of you who don't know every now

1209  
00:57:52,810 --> 00:57:50,470  
and then I'll roll a dice die a dice and

1210  
00:57:54,820 --> 00:57:52,820  
I can never quite figure out what's the

1211  
00:57:59,860 --> 00:57:54,830  
plural and the singular I just say dice

1212  
00:58:01,870 --> 00:57:59,870  
it's easier and you see if you can use

1213  
00:58:04,240 --> 00:58:01,880

your psychic powers to predict the

1214

00:58:07,750 --> 00:58:04,250

outcome I have to here I've got a six

1215

00:58:10,210 --> 00:58:07,760

sided dice die nice and a ten sided

1216

00:58:12,760 --> 00:58:10,220

let's start with the six first and since

1217

00:58:16,360 --> 00:58:12,770

I'm now using my new fancy shmancy

1218

00:58:19,180 --> 00:58:16,370

recording booth I actually and can't

1219

00:58:20,940 --> 00:58:19,190

really roll the dice on the desk easily

1220

00:58:22,540 --> 00:58:20,950

so I will put it in a little container

1221

00:58:28,350 --> 00:58:22,550

there it goes

1222

00:58:38,250 --> 00:58:31,660

out of six and the dice has come to

1223

00:58:41,640 --> 00:58:38,260

number two right I'll take that one out

1224

00:58:43,690 --> 00:58:41,650

put it in the tin sided there we go

1225

00:58:48,700 --> 00:58:43,700

here's your chance if you didn't get

1226  
00:58:53,760 --> 00:58:48,710  
number two out of ten predict away and

1227  
00:58:56,400 --> 00:58:53,770  
the dice has come to number two again

1228  
00:58:59,170 --> 00:58:56,410  
well there you go

1229  
00:59:02,110 --> 00:58:59,180  
so those people who got both right

1230  
00:59:04,750 --> 00:59:02,120  
congratulations but for this week

1231  
00:59:11,440 --> 00:59:04,760  
this is Richard Saunders signing off

1232  
00:59:13,300 --> 00:59:11,450  
from Sydney Australia you've been

1233  
00:59:17,710 --> 00:59:13,310  
listening to the skeptic zone podcast

1234  
00:59:19,990 --> 00:59:17,720  
visit our website at WWF gigs on TV for

1235  
00:59:24,340 --> 00:59:20,000  
contacts an archive of all episodes

1236  
00:59:26,560 --> 00:59:24,350  
since 2008 and our online store please

1237  
00:59:29,860 --> 00:59:26,570  
support the skeptic zone by following us

1238  
00:59:32,820 --> 00:59:29,870

on twitter at skeptic zone liking us on

1239

00:59:35,200 --> 00:59:32,830

facebook and leaving a review on iTunes

1240

00:59:38,080 --> 00:59:35,210

you can also show your support by

1241

00:59:39,970 --> 00:59:38,090

subscribing via PayPal for as little as

1242

00:59:42,250 --> 00:59:39,980

99 cents a week

1243

00:59:43,870 --> 00:59:42,260

the skeptic zone is an independent

1244

00:59:46,359 --> 00:59:43,880

production the views and opinions

1245

00:59:47,950 --> 00:59:46,369

expressed on the skeptic zone are not

1246

00:59:50,829 --> 00:59:47,960

necessarily those of Australian