## Solution to example 6

Cards				
17% of people	Children under 6	An estimated	56% of the over	An estimated
registered are	require 1 box of	30% of pregnant	64 age group had	55% of under 6s
over 64.	antiviral	women will	a flu vaccination	will exhibit
	medicine.	exhibit symptoms	at the start of the	symptoms of flu.
		of flu.	winter.	
Flu medicine can	People with no	An estimated	An estimated 1%	At risk groups are
be ordered in	symptoms are	85% of the "low	of people	tested for flu as
sets of 10 boxes.	not tested for flu.	risk" group that	registered will be	soon as they
		have symptoms	pregnant women.	exhibit any
		of flu will choose		symptoms.
		not to be tested.		
An estimated	People who are	There are 1913	People in the	The estimated
45% of	aged from 6 to 64	people registered	"low risk" group	probability of a
unvaccinated	and aren't	with the practice.	can choose to be	person with the
over 64s will	pregnant are		tested and	symptoms
exhibit symptoms	considered to be		receive antiviral	actually having
of flu.	"low risk."		medicine if they	flu is 0.7.
			wish.	
8% of people	Adults and	People who have	Pregnant women,	An estimated
registered are	children aged 6	received the flu	over 64's and	30% of the "low
under 6.	and over require	vaccine will not	under 6's are	risk" age group
	2 boxes of	display any	considered to be	will exhibit
	antiviral	symptoms and	the "at risk"	symptoms of flu.
	medicine.	will have virtually	groups.	
		no chance of		
		contracting this		
		strain of flu.		



Using the cards:

- There are 1913 people registered with the practice
- An estimated 1% of people registered will be pregnant women
- 8% of people registered are under 6
- 17% of people registered are over 64
- Pregnant women, over 64's and under 6's are considered to be the "at risk" groups

This allows the total numbers in each of the groups to be calculated

Over 64s:  $0.17 \times 1913 = 325$  (nearest whole number)

Pregnant women:  $0.01 \times 1913 = 19$  (nearest whole number)

Under 6s:  $0.08 \times 1913 = 153$  (nearest whole number)

Low risk group: 1913 - 325 - 19 - 153 = 1416

Using the cards:

- 56% of the over 64 age group had a flu vaccination at the start of the winter
- An estimated 45% of unvaccinated over 64s will exhibit symptoms of flu
- An estimated 30% of pregnant women will exhibit symptoms of flu
- An estimated 55% of under 6s will exhibit symptoms of flu
- An estimated 30% of the "low risk" age group will exhibit symptoms of flu

This allows calculation of the number of each group who will exhibit symptoms

Over 64s:  $0.56 \times 64 = 182$  so 325 - 182 = 143 unvaccinated.  $0.45 \times 143 = 64$  symptoms

Pregnant women:  $0.3 \times 19 = 6$  symptoms

Under 6s:  $0.55 \times 153 = 84$  symptoms

Low risk:  $0.3 \times 1416 = 425$  symptoms

(all rounded to the nearest whole number)

Using the cards:

- People in the "low risk" group can choose to be tested and receive antiviral medicine if they wish
- An estimated 85% of the "low risk" group that have symptoms of flu will choose not to be tested

Low risk that will be tested =  $0.15 \times 425 = 64$ 

Using the cards:

- At risk groups are tested for flu as soon as they exhibit any symptoms
- The estimated probability of a person with the symptoms actually having flu is 0.7

Over 64s:  $0.7 \times 64 = 45$  will have flu



Pregnant women:  $0.7 \times 6 = 4$  will have flu

Under 6s:  $0.7 \times 84 = 59$  will have flu

Low risk:  $0.7 \times 64 = 45$  will have flu

Using the cards:

- Adults and children aged 6 and over require 2 boxes of antiviral medicine
- Children under 6 require 1 box of antiviral medicine
- Flu medicine can be ordered in sets of 10 boxes

Adults: 45 + 45 + 4 = 94 Under 6s: 59

 $2 \times 94 + 59 = 247$  boxes needed so order 250

