

Individuals, behaviour change and the Web

Lucy Yardley

Professor of Health Psychology

School of Psychology

Outline of session

1. What does psychological theory and research tell us about human behaviour?
2. How can psychological theory and research be applied in web science?
 - a) understanding and predicting responses to the web
 - b) experimentally manipulating responses to the web (with illustration)

What is the aim of psychological theory and research?

- to understand people's behaviour (and what influences it)
- to predict people's behaviour
- to change people's behaviour



What will promote condom use to reduce risk of HIV infection?

- Information about the positive benefits of using condoms
- Information about the negative consequences of HIV infection – ‘fear appeal’
- Interpersonal skills training in how to bring the topic of condom use up with your partner
- Providing condoms and training in their use
- Online information about personal likelihood of getting HIV from current sexual behaviour

- Information about the positive benefits of using condoms

Yes, but only if help given to implement positive attitude

- Information about the negative consequences of HIV infection – ‘fear appeal’

No – not effective

- Interpersonal skills training in how to bring the topic of condom use up with your partner

Yes for women – negative effects on men!

- Providing condoms and training in their use

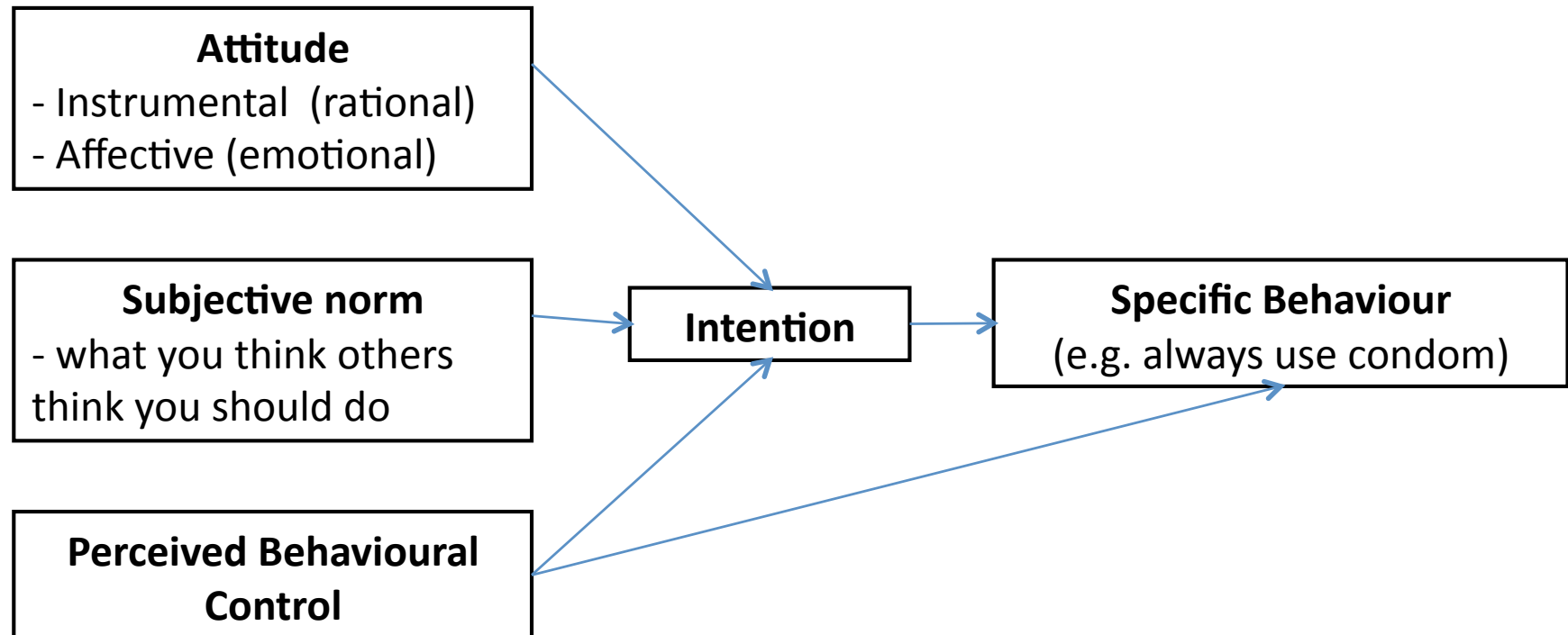
Important, but mainly for men!

- Online information about personal likelihood of getting HIV from current sexual behaviour

No – resulted in 50% sample logging off

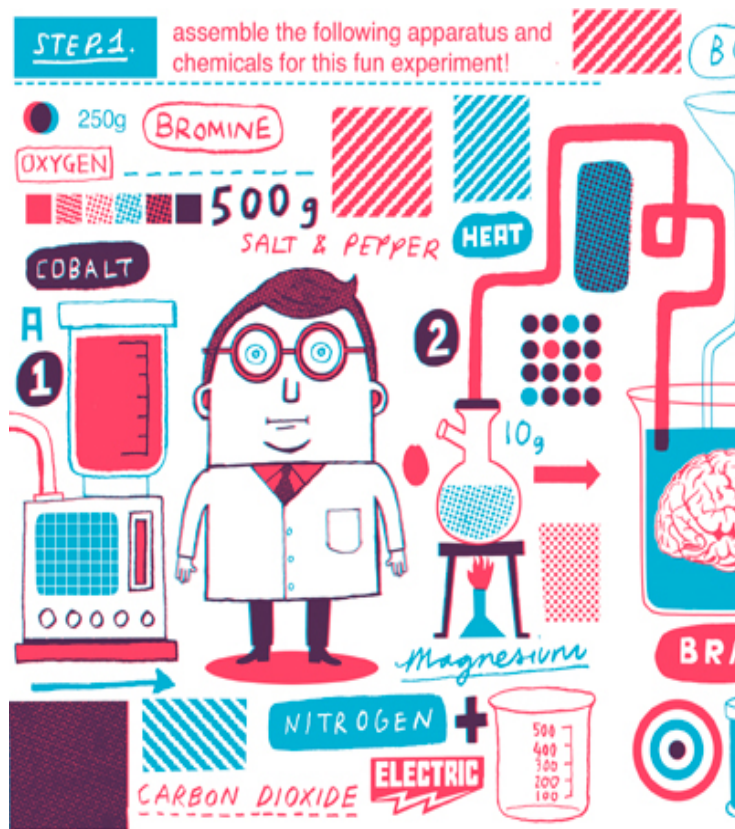
D. Albarracin et al. (2005) *Psychological Bulletin*, 131; 856-97

Theory of Planned Behaviour



Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52, 27-58.

Social Cognitive Theory



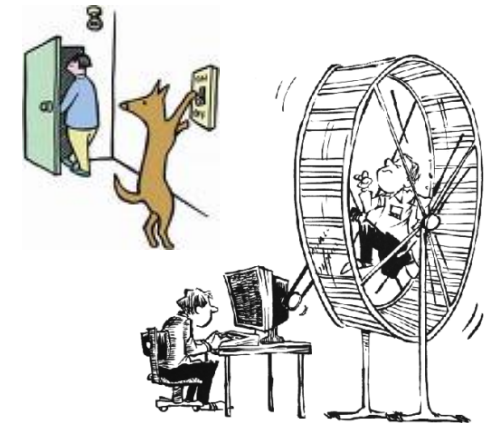
Types of information that influence behaviour:

- persuasive – information/arguments
- vicarious – observing others' actions/outcomes
- enactive – personal experiment to try it out

Q: Behavioural interventions – what are they?

A: Interventions to promote behaviour change by means of (motivational) advice and (preferably) longitudinal support to overcome 'intention-behaviour gap'

- eat a healthy diet
- learn parenting skills
- use less energy at home
- work more efficiently



Traditional methods of delivering behavioural interventions

a) face-to-face, e.g. teacher, therapist, manager

- expert, personalised
- effective but resource intensive



b) print format, e.g. leaflet

- generic, no support
- cheap but low impact



Key components of *effective* behavioural interventions

1. Delivering advice, 'tailored';
 - use 'diagnostic' questions to select relevant advice from extensive expert resources
 - use motivational techniques
2. Providing longitudinal support, e.g.
 - plans, reminders
 - progress monitoring
 - progress-relevant feedback
 - social support (therapist, peers)

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Understanding and predicting responses to the web

Usability testing (from human-computer interaction) analyses

- cognitive and perceptual/motor barriers to task completion
- user 'acceptability' and 'satisfaction'

Often minimal, superficial, poor methodology

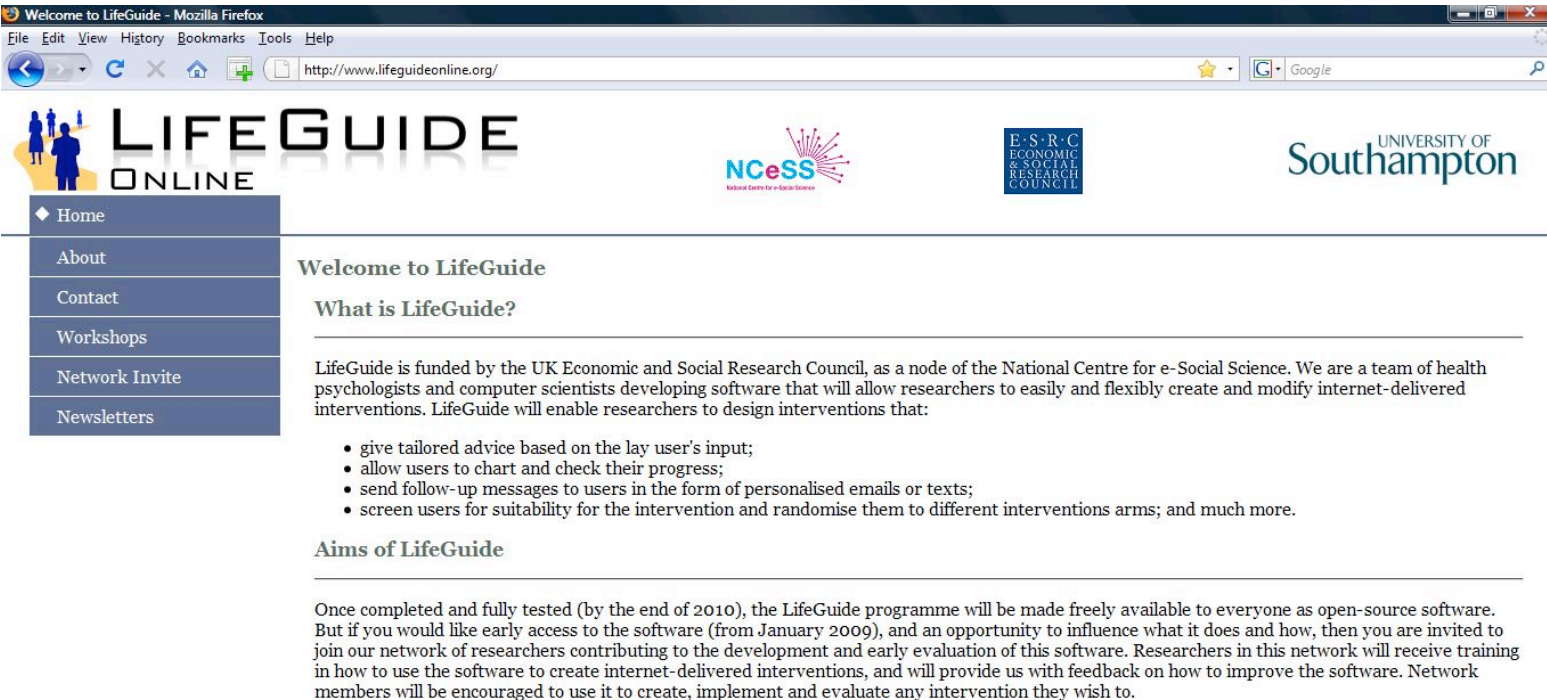
If done well can uncover important issues with wider relevance (e.g. older people response to hardware/content)

Need in-depth analysis, link to social science theory/research
e.g. understanding how/why some users respond in particular ways in some contexts – to inform future design)

Experimentally manipulating responses to the web – ‘persuasive technology’

Fogg, B. J. (2006). *Persuasive Technology: Using computers to change what we think and do*. San Francisco: Morgan Kaufmann.

Test effects on users of theory-based web-delivered behaviour change techniques



The screenshot shows a Mozilla Firefox browser window displaying the LifeGuide website. The address bar shows the URL <http://www.lifeguideonline.org/>. The website header includes the LifeGuide ONLINE logo, the NCESS logo (National Centre for e-Social Science), the ESRC logo (Economic and Social Research Council), and the University of Southampton logo. A navigation menu on the left lists: Home, About, Contact, Workshops, Network Invite, and Newsletters. The main content area is titled "Welcome to LifeGuide" and "What is LifeGuide?". It states that LifeGuide is funded by the UK Economic and Social Research Council, as a node of the National Centre for e-Social Science. It describes the team as health psychologists and computer scientists developing software for internet-delivered interventions. A bulleted list of features includes: giving tailored advice based on user input, allowing users to chart progress, sending follow-up messages via email or text, and randomising users to different intervention arms. The "Aims of LifeGuide" section states that the program will be freely available as open-source software by the end of 2010, and offers early access from January 2009 to researchers who can provide feedback on the software.

Welcome to LifeGuide

What is LifeGuide?

LifeGuide is funded by the UK Economic and Social Research Council, as a node of the National Centre for e-Social Science. We are a team of health psychologists and computer scientists developing software that will allow researchers to easily and flexibly create and modify internet-delivered interventions. LifeGuide will enable researchers to design interventions that:

- give tailored advice based on the lay user's input;
- allow users to chart and check their progress;
- send follow-up messages to users in the form of personalised emails or texts;
- screen users for suitability for the intervention and randomise them to different interventions arms; and much more.

Aims of LifeGuide

Once completed and fully tested (by the end of 2010), the LifeGuide programme will be made freely available to everyone as open-source software. But if you would like early access to the software (from January 2009), and an opportunity to influence what it does and how, then you are invited to join our network of researchers contributing to the development and early evaluation of this software. Researchers in this network will receive training in how to use the software to create internet-delivered interventions, and will provide us with feedback on how to improve the software. Network members will be encouraged to use it to create, implement and evaluate any intervention they wish to.

Advantages of the LifeGuide

Current situation: most internet-delivered behavioural interventions are programmed individually – and then you are stuck with whatever you have created!



Developing software to allow researchers to flexibly create and modify interventions will:

- a) have immediate pragmatic benefits
- b) create the potential for more rapid and powerful development of behavioural science

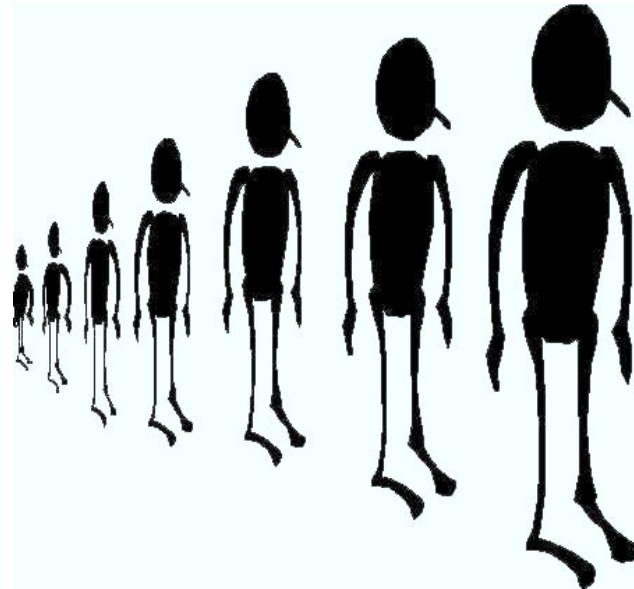
The scientific potential of the LifeGuide

- Each modification/evaluation cycle tests theories on which intervention components are based
- Networks of researchers can
 - a) share intervention components
 - b) collaboratively collect much larger datasets allowing mediation and moderation analyses of effects of intervention components



Longer-term scientific potential of the LifeGuide

Foundation for a future ‘population laboratory’;
semantically enriched, adaptive grid using
automatic data collection to continuously
model/refine interventions

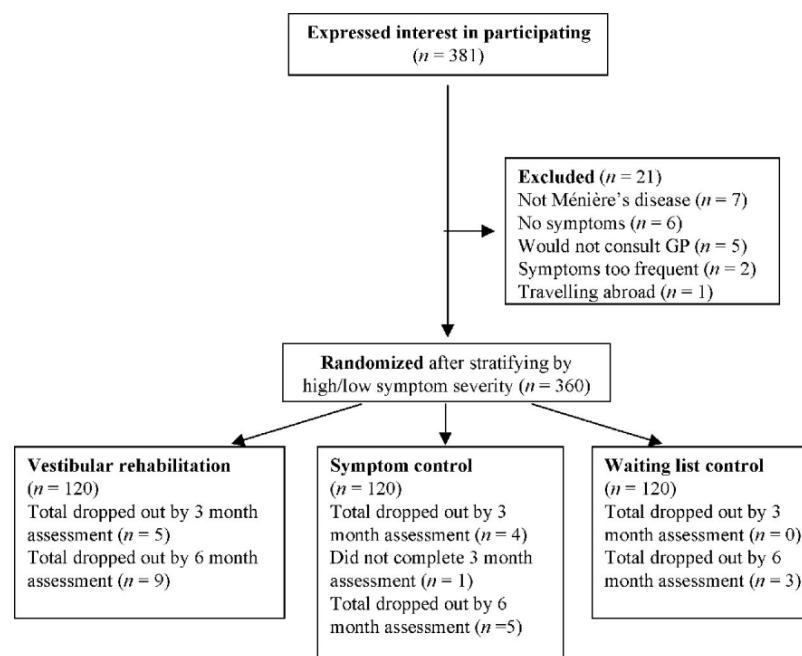


Planned initial functionality of LifeGuide

1. Delivering tailored advice and motivational techniques
2. Providing longitudinal support, e.g.
 - reminders (e.g. automated emails)
 - planning, progress monitoring (e.g. longitudinal graphing)
 - progress-relevant feedback (tailored)
 - social support (e.g. emails, discussion board, peer comparisons, chat room sessions)

Planned initial functionality of LifeGuide

3. Facilities for carrying out evaluations (RCTs)
- screening and multi-user registration
 - stratified randomisation
 - automated baseline and follow-up assessment
 - monitoring throughput and adherence
 - output all data to Excel, SPSS etc.



Intervention manager: session data page with route map

The screenshot displays the 'Intervention Sessions' page in a web application. On the left, a sidebar contains navigation links: 'My Interventions', 'Shared Interventions', and 'My Account'. The main content area is titled 'Intervention Sessions' and is divided into several sections:

- Information:** A summary box showing 'Intervention: LifeGuide Internet Doctor', 'Number of sessions: 2', and 'Number of non-anonymous users: 2'.
- Sessions List:** A table with columns for 'Id', 'User Id', 'Date', and 'Duration'. It lists two sessions: ID 501 (User 1, 02/09/2008 11:50 BST, 1 minute, 14.946 seconds) and ID 502 (User 2, 02/09/2008 11:52 BST, 33.652 seconds).
- Page view chart:** A bar chart showing 'Hits' for 'Sep 02, 2008 - Sep 03, 2008'. The chart shows a single bar for Sep 02 with a value of 2.0. The chart is attributed to 'chart by amCharts.com'.
- Page view diagram:** A flow diagram showing the sequence of page views. Nodes include pA1a, pD3, pA1b, pD2, pA1c, pD1, pA1c2, pC1, pW2, and pC2. Arrows indicate the flow between these pages.
- Map:** A map of the United Kingdom showing a yellow route. The map is attributed to 'tool by ammap.com'.

At the bottom right of the page, there is a status indicator: '0 errors / 15 warnings'.

Example interventions

The following slides are taken from the beta version of the lifeguide

The URL has been deleted from the public version of these slides because the LifeGuide product has not yet been publicly released.

How to Protect Yourself and the People You Live With From Colds and Flu

Welcome to the 1st session of your cold and flu prevention website

Through **weekly sessions** you will be given all the information you need to learn how to protect yourself from colds and flu.

This site will present you first with the information that matches your particular situation. Afterwards you can search the site for other information if you want to.

(Photo of someone with a cold to be inserted)

The weekly sessions will cover:

- ▶ **Personalised information for you and the people you live with**
- ▶ **Medical facts about viruses to help explain how you catch them**
- ▶ **Practical advice on how to protect yourself from cold and flu viruses**
- ▶ **Support and tips on how to make these ideas easier**
- ▶ **Ongoing feedback and help with your progress**

Sign up for weekly sessions

To access each weekly session you will need to log in using details we will send you. To do this, and to help you remember to log in each week, we will contact you by email.

First we need your email address and your consent to contact you.

- ▶ We do not share this information or any other data you enter with anyone else. However, it may be used by the website team to help with our research on preventing colds and flu.
- ▶ All information will be anonymous and confidential.
- ▶ If you wish to withdraw from the sessions at any time, just email: s.miller@soton.ac.uk.

I would like to have access to the weekly sessions for cold and flu prevention.

I give my consent for you to contact me using my email address (please select)

Please contact me using the following email address:

next



(the embedded/pop-up data, has to be clicked on.)

The website team

The website has been put together by Professor Paul Little and his team. Paul is a GP and sees patients every week. As well as having daily experience of treating people with colds and flu, he is an international expert on these infections. He works with the Department of Health and other leading bodies, advising them on colds and flu.

The team is made up of health experts from UK Universities who are working together to find ways of preventing the colds and flu that people suffer each year.

The website is funded by the Medical Research Council.

More detailed information on the research aims and the people involved will be available in session 2.

The website has been
put together by
Professor Paul Little.
Click here for more
information on the
website team.

(This information would be
down the left side of the front
page.)

Session 1

This first session won't take more than 5 minutes to read, but it contains lots of important information that you need to know.

For this session (and the first parts of your future sessions) to move through the pages you just scroll down to the bottom and click on 'next'.

After you have clicked through the pages we have designed for you, then you will be able to you can move around the website freely in the same way as other websites you may have used.

For more interesting facts you can click on this symbol throughout the website.

These pages contain **extra** information such as scientific evidence, and advice from international health groups.



You will be able to print off or save all the information on this website at the end.

Your household

Before we start, we would like to make sure that the information is relevant to you.

Please can you tell us how many people live in your house (other than yourself):

Please choose the correct number from each of the drop down boxes

Children under 16 years old

Adults (16 and over) who are related to you, including partner/spouse

Adults (16 and over) who are not related to you

next

Why Try to Lower the Risk of Catching Colds and Flu?

No-one likes getting colds or flu, but we get used to putting up with them.

If you use the simple ideas on this website you can actually cut down on how many colds you and your family get each year, and how bad they are.

Cut down on colds and flu now!



Protect your health

This is really important if anyone in your house is more at risk from colds and flu – **for example young children, older people, or people with poor health or breathing difficulties such as asthma.**

It will take a bit of practice for you and your family to use the ideas on this website.

But once you have learnt them **they will become habits that you'll do easily.**

And they will help **protect you from catching colds and flu every year.**



next

Be Prepared for Pandemic Flu

Experts in the NHS and other international health groups agree that a new type of flu virus is likely to appear soon. They think the problem is not whether this will happen, but how soon it will happen, and how bad the virus will be.

When the new virus appears it will spread across the world, and become a pandemic. You need to know how to lower the danger of you and your family catching pandemic flu because:

- ▶ ***everyone*** will be at risk - no-one will be immune to it
- ▶ **if you catch flu first there is a high risk that you could give it to your family**
- ▶ **if you catch flu from family members who are ill you will not be able to look after them**
- ▶ pandemic flu could cause serious illness – in the past it has led to the deaths of healthy adults as well as children and older people
- ▶ GPs and hospitals may be so busy that only the worst cases can be treated
- ▶ the virus is likely to take only a few weeks to spread across the world – and there may not be time to develop a vaccine to protect people
- ▶ medicine usually given for flu may not work as well on pandemic flu

Over the last century there were flu outbreaks in 1918, 1957 and 1968.

This means that we have had the longest gap between pandemics to date (now 40 years), and so it could be any time, and we certainly can't afford to assume it won't happen soon.

In the last major outbreak of flu, in 1918, over 40 million people died worldwide. The next pandemic might not be so bad, but it could be worse - there is no way of telling before it starts.



**to test how much you know
about pandemic flu in our quiz**

Teach your children

It is especially important to try to teach children how to protect themselves from catching flu before the pandemic happens. They will be much more likely to learn good habits if you provide a good example to them - they will naturally copy you.

next

Cut Down on Viruses - Cut Down on Colds and Flu

Catching a cold or flu

Obviously it is impossible to avoid cold and flu viruses completely – so most people think it is purely luck whether they catch a cold or flu.

But you don't catch an infection from just one virus – you get ill when the number of viruses that enter your body is more than it can cope with.



Less viruses = less illnesses

The more viruses that enter your body at once, the harder it is for your body to cope, and the worse your symptoms will be. If you reduce the number of viruses you have contact with then your body will be able to fight off the infection better.

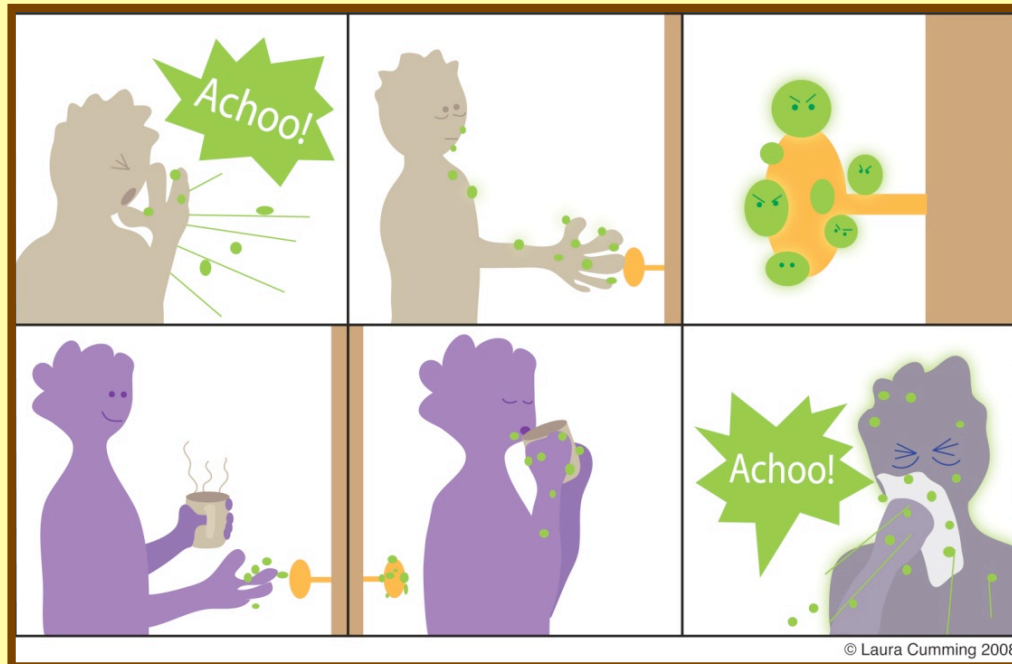
You can't avoid picking up all viruses, but if you come into contact with less your body will have a chance to fight back.

This means you don't have to avoid ALL viruses. But by avoiding more you can cut down the number of times you catch colds and flu, and how bad they are.



next

Why Washing Your Hands is the Best Way to Protect Yourself and Others



Viruses live for hours outside the body:

- ▶ they settle on surfaces after being breathed out
- ▶ they get on infected people's hands when they touch their face, or cough and sneeze
- ▶ they are on surfaces touched by infected people's hands

You can pick them up by:

- ▶ touching an infected surface such as: a cup, door handle, stair rail, computer keyboard, shop counter, money
- ▶ then touching your face either: consciously - like scratching an itch
or automatically - like rubbing your eyes

It is very easy to touch your face without noticing you are doing it.

If your fingers have viruses on them and then you touch your mouth, nose or eyes you are like to infect yourself. Our eyes have tear drains that flow into the nose and so can pass a virus down to it.

This is why you need to wash your hands often, as you may touch your face at any time without realising you are doing it.



to find out how the US
Navy use
handwashing to
improve national
security!

Wash your hands with soap or gel

To stop viruses being passed from your hands to your eyes, nose and mouth, you need to wash your hands regularly

▶ **using soap and water**

▶ **or an antibacterial hand gel.**

It is vital to use either of these - water alone doesn't kill viruses.

This is one of the most effective ways of preventing the spread of infection – this is why it is the main method used to fight infection in hospitals.



How Often Do You Wash Your Hands?

Think about how much you have washed your hands over the last week. Then click on the circle that fits each activity best.

WASHING YOUR HANDS INCLUDES USING A HAND GEL OR USING SOAP AND WATER

I washed my hands with soap or gel:	almost never	some times	quite often	very often	almost always
before I ate a meal	0	0	0	0	0
before I ate snacks (e.g. crisps, sweets, fruit)	0	0	0	0	0
when I went to the toilet	0	0	0	0	0
when I came into the house (e.g. after work, shopping, travelling)	0	0	0	0	0
after I had been close to someone who has a cold or flu	0	0	0	0	0
after blowing my nose or sneezing/coughing on my hands	0	0	0	0	0

next

Your Cold and Flu Prevention Plan

Now you can choose a hand washing plan to protect you and your family from colds and flu.

The purpose of this plan is to help you wash your hands MORE than you do already:

- ▶ **by committing to washing your hands at certain times**
- ▶ **and helping to remind you when to wash your hands**

Not sure when to wash your hands?



to find out when they have the most viruses on them

This is an example of how your cold and flu prevention plan might look:

Our Cold and Flu Prevention Plan

I commit to washing my hands with gel or soap and water:

- ▶ **VERY OFTEN** before I eat a meal
- ▶ **SOMETIMES** before I eat snacks



- ▶ **ALMOST ALWAYS** when I go to the toilet
- ▶ **VERY OFTEN** when I come into the house
- ▶ **QUITE OFTEN** when I have been close to someone who has a cold or flu
- ▶ **SOMETIMES** after blowing my nose or sneezing/coughing on my hands

Signed _____

"It's all common sense. But because it is so basic we have forgotten we know it, therefore we don't use it, so we do need to be made aware of it. I think posters would be a good idea, just to keep people focussed on it, so it becomes a way of life."

(Brian, Burton-on-Trent)

Now you just follow these 3 simple steps on the next 3 pages:

1 Choose your plan: make a commitment to wash your hands

2 Use it to remind you to wash your hands

3 Print your plan

next

Step 1 - Choose Your Plan, Make a Commitment to Wash Your Hands

Look at the survey below. It shows how much you washed your hands **up to now**.

Now think about how much you want to wash them IN THE FUTURE and CHANGE it by CLICKING ON A NEW CIRCLE to improve your handwashing.

Remember: Washing your hands includes using a hand gel or using soap and water

I will wash my hands with soap or gel:	almost never	some times	quite often	very often	almost always
before I eat a meal	0	0	0	0	0
before I eat snacks (e.g. crisps, sweets, fruit)	0	0	0	0	0
when I go to the toilet	0	0	0	0	0
when I come into the house (e.g. after work, shopping, travelling)	0	0	0	0	0
after I have been close to someone who has a cold or flu	0	0	0	0	0
after blowing my nose or sneezing/coughing on my hands	0	0	0	0	0

next

Warning!

This plan aims to help you wash your hands MORE than you already do.

You have chosen to wash your hands the same amount as you ALREADY do for all the activities.

Remember: The more you wash your hands, the better protected you and your family are from cold and flu viruses.

Have another go at making your commitment, and think about the activities when it would be easiest to wash your hands a bit more.

For example: if you usually wash your hands 'sometimes' before snacks why not try washing them 'quite often' from now on?

back to
commitment

INSTRUCTIONS PAGE

The warning message will be based on how they filled out the 'how often do you wash your hands?'. If all the categories selected in the plan are the same (or less) than the 'how often...' the warning message will show. There will be a cut off point so that any actions from 'how often ...?' that were 'very often' or 'almost always' will not be expected to improve. and the 'A Good Plan' message will be displayed even without improvement on those items.

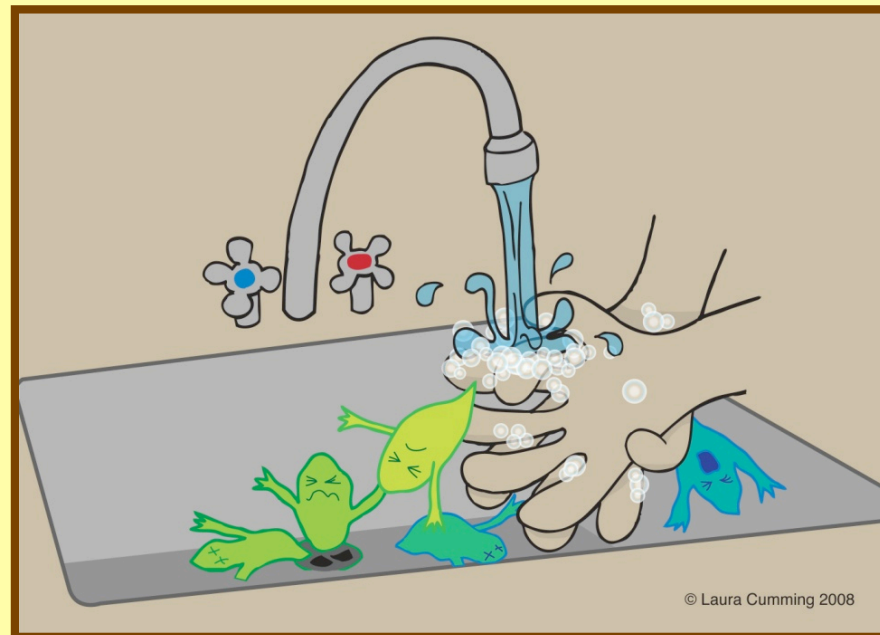
I will wash my hands with soap or gel:	almost never	some times	quite often	very often	almost always
before I eat a meal	0	0	0	0	0
before I eat snacks (e.g. crisps, sweets, fruit)	0	0	0	0	0
when I go to the toilet	0	0	0	0	0
when I come into the house (e.g. after work, shopping, travelling)	0	0	0	0	0
after I have been close to someone who has a cold or flu	0	0	0	0	0
after blowing my nose or sneezing/coughing on my hands	0	0	0	0	0

next

A Good Plan!

You have chosen a plan that will help to protect you and your family from cold and flu viruses.

Now you can move on to the next step to help remind you to keep to your commitment.



next

Step 2 - Reminding You to Wash Your Hands

Now decide how you would like to use your plan to remind you to wash your hands.

For example:

- ▶ Put it up around your house
- ▶ Print it off, sign it and keep a copy
- ▶ Show it to someone else and ask them to help remind you



next

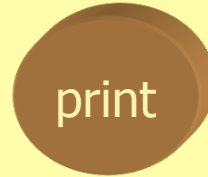
Step 3 - Printing Your Plan

If you would like to print your plan out, please follow these instructions:

Please select the number of copies you would like to print from this box:

(drop down box 1-10)

Now click on the 'print' button,



or use the print symbol on your tool bar.

The plan will work best if everyone in the family does it, so get everyone to sign it, or email them an invitation to use this website too.

Just enter their email addresses below and they will automatically receive the invite when you click on 'next'.

Email address:

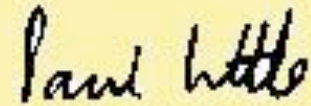
Email address:

Email address:

Click here to send more emails.



“Thank you for taking the time to read this website. By following the advice in here you can make a difference to your family’s health”



Professor Paul Little, GP

If you would like to print or save the information in the website please click here:



print



save

In a week you will receive an email asking you **to log on to the website for your next session.**

If you would like to look at the information again before then, or show it to the rest of your family, you can log on anytime.

**new in
session 2!**

- ▶ **more tips on how to avoid colds and flu**
- ▶ **extra advice if you have been finding it difficult to keep to your prevention plan**
- ▶ **more information from scientific research**
- ▶ **the chance to compare your handwashing against other people**

Please remember to fill in your diary if you get ill in the mean time
To leave the website either click on 'exit', or close your web browser as normal.



exit