



Democs game (ver 3.0)

Nanomedicine for Atherosclerosis

to predict and treat heart attacks and strokes

Copies of the game and cards may be downloaded free from:

www.edinethics.co.uk/democs/nanoathero

This website also enables you to fill in your results online.

This Democs game has been produced as part of the NanoAthero project (Nanomedicine for target-specific imaging and treatment of atherosclerosis: development and initial clinical feasibility), a Collaborative Project funded from the European Community's Seventh Framework Programme (FP7/2007-2013), Theme 1: Health, grant agreement no. 309820, from 2013-17.

**If you would like to find out more information
about the EC NanoAthero project**

<http://www.nanoathero.eu/>

(Co-ordinator: Prof Dr Didier Letourner, Hôpital Bichat, Paris)

About this game and Edinethics Ltd

www.edinethics.co.uk

Dr Donald Bruce, Edinethics Ltd.,
11/6 Dundonald Street, Edinburgh EH3 6RZ. UK
Tel: 08456 444937, email: info@edinethics.co.uk

About other Democs games

see also www.playdecide.eu and www.neweconomics.org

Nanomedicine for Atherosclerosis

to predict and treat heart attacks and strokes

a Democs game

to discuss an emerging field of science
and what it could mean for our lives

Game instructions



This Democs game
has been created by Edinethics Ltd.
as part of the NanoAthero Project,
funded by the European Commission
Framework 7 Research Programme

What is a Democs game?

Democs is a group conversation card game which aims to help people to learn about important new developments in science, technology and medicine, and to think about their ethical and social implications, without needing expert knowledge. Democs games have been created on many subjects since the first one (on stem cells) in 2001. This game is about the use of nanotechnology in the medical diagnosis and treatment of the heart disease atherosclerosis.

The aim is to learn together about the topic, and form opinions about it, both individually and as a group. Players get hands of cards and take turns to read and discuss them. The cards provide information, stories and issues. At the end of the game, the players can vote on different options.

Democs can be played anywhere, by anyone. All you need is a kit (boxed set or download), six to eight people (though you can play with more or less), and a table. To get the most out of it, allow 1½ to 2 hours, but it can be played in as little as 1 hour. You don't need to know anything about the topic beforehand; the cards are the 'expert'.

One person acts as the dealer. It's the dealer's job to have read these instructions, and then be able to lead the players through the different stages of the game. At the end he / she should also collect the results and send these back for analysis. It's quite straightforward. If you are thinking about organising a game, go for it!

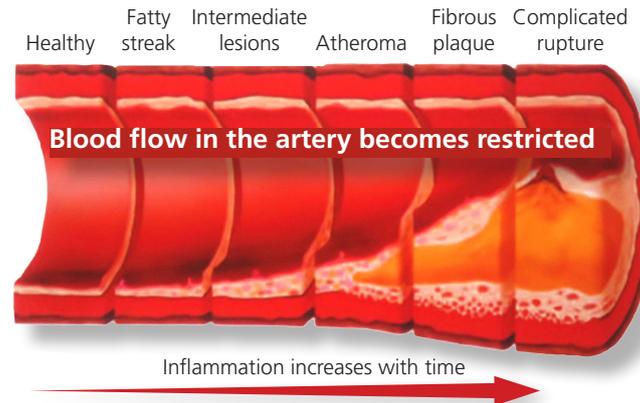
Atherosclerosis and Nanomedicine

This Democs game explores the idea of using tiny, nano-sized particles to diagnose and treat people suffering from the heart disease atherosclerosis. Atherosclerosis is the build up of a waxy deposit (plaque) inside blood vessels which gradually causes the arteries to harden and narrow, restricting the blood flow and oxygen supply to vital organs.

If a plaque becomes unstable, it is vulnerable to rupturing suddenly, which could block the flow of blood to the heart, causing a heart attack, or to the brain, causing a stroke. Atherosclerosis is one of the biggest causes of death in Europe, but it doesn't tend to have any symptoms at first, and many people may be unaware they have it.

This game is part of a European Commission medical research project called **NanoAthero**, to detect and treat advanced atherosclerosis, before it's too late, using nanotechnology.

Progression of Atherosclerosis with time



Nanomedicine

The NanoAthero Project is developing ways to test and treat people for the early signs of unstable plaques and blood clots caused by atherosclerosis. It does this with specially created nanoscale particles, small enough to enter body cells. Some are designed to locate affected cells in the heart which then show up on MRI or CT scans. Other nanoparticles are made to encapsulate medicines to deliver them directly to the damaged cells. A nanometer is a millionth of a millimeter, about the size of 3 atoms of gold.

Nanomedicine: You may know about heart disease and strokes yourself or from family members, but nanomedicine may be less familiar. This game aims to enable you to find out not only about the NanoAthero project but also other developments in nanomedicine, which may lead to changes in health care in future – moving towards medicine based on prediction not just visible symptoms, with targeted and more personalised drugs, the remote monitoring of vulnerable patients, and greater control over our own health outcomes.

The Democs game looks at some of the wider issues, like how safe are these tiny nanoscale devices in my body, and how good are the predictions or the proposed therapies, and how are these tested? Is all this information about my future health a good thing, or just extra stress? The game aims for you to see what's involved, consider the wider issues, and come to your own opinions about it. It has been written by Dr Donald Bruce of Edinethics Ltd, an Edinburgh-based consultancy company on ethics and technology. He is one of the partners in the NanoAthero project.



How the game works

A Democs game has five rounds. In rounds 1, 2 and 3, players get dealt different hands of cards which are read out and discussed. In the first round everyone is given a single story card to read out to the group. In rounds 2 and 3, players are given a hand of Information cards and Issue cards respectively. Each player is asked to look at his / her hand of cards and select two that they think are most important or interesting. They read them out to the group, say why these ones interest them, and place them on the table. The group can comment and discuss them as you go round.

As the discussion develops, certain topics will have come out. One or two of the Story Cards might be useful, but you don't have to follow these. It's entirely up to the group. In Round 4, the dealer encourages players to gather their ideas into opinions, questions or statements which they would like to make, grouping the cards into clusters. You can have several clusters. Each one gets written down on a cluster card. In the final Round 5, each player is asked to vote on individual voting sheets on 8 questions about nanomedicine, and are invited to give their reasons, in their own words.

Filling in the cluster card information and voting sheets can also be done online. After the game, the dealer sends the cluster cards, voting grids and feedback form in the stamped addressed envelope to:

Donald Bruce, Edinethics Ltd.,
11/6 Dundonald Street, Edinburgh EH3 6RZ, UK.

We will analyse what you and other players have said about these issues and report our findings to the European Commission in the output from the NanoAthero project.

Kit contents

One set of instructions (which you're reading!)

Main cards

You can use these cards every time you play:

- 8 large pink story cards (Set S)
- 36 (green) information cards (Set A)
- 36 (blue) issue cards (Set B)
- 3 yellow cards.



Single-use items

These items get written on during the game. We've given you enough for one game, with a few spares. If needed, extra items can be downloaded from the website for you to print.

For example, if you play a second game you will need up to 8 fresh copies of the comment sheets, one joint voting card, more cluster cards and an address label (though you will have to pay the postage).

- 4 pale blue cluster cards
- 3 grey blank cards
- 8 individual voting sheets
- 1 feedback form
- 1 stamped addressed envelope.



Dealer's instructions

Before the game – setting up

As the dealer, spend a little bit of time getting ready before the game starts. You need to:

- Read the instructions carefully to make sure you understand what happens in each round. There's a timetable on pages 5-6, but it helps to know where you're going beforehand.
- Check the kit to make sure you have everything.
- Find a table, and a few pens.
- Lay out the elements of the kit in the order they will be used.
- If you intend to enter voting results and cluster cards online, open up www.edinethics.co.uk/democs/nanoathero in readiness.

Top tips for dealers

- 1 **No surprises.** Make sure all the players know how the process fits together so they can figure out what they need to do in each round.
- 2 **It's good to talk...** Since the point is to talk about the issues, encourage people to say what they think and to respond to each other's views (politely!)
- 3 **...but silence is OK too.** Early in the game, people may spend more time reading cards than talking. Discussion will come later.
- 4 **Everyone deserves to be heard.** Make sure everyone gets the chance to speak and that no one dominates. One way is to ask people at the start to agree to let others finish before they start to speak. If you do this, remind people of their agreement when they forget it!
- 5 **Don't try to bear-lead the conversation.** Your role is to help everyone have their say and to interact and learn together. Don't do all the talking yourself! Discussions may be quite wide ranging, but try to rein back the discussion if it's going way off the topic.
- 6 **Stick to time.** Let the talk flow until it's time to move on to the next round, and each time explain what the players should do in that round. If you think you'll struggle with time, set an alarm to ring when each round should end.

Basic elements of the game

Story cards (set S)

These are stories about some people and situations to do with nanotechnology and medicine. All of the people and the stories are fictitious, but they are based on real issues which have arisen, or might be envisaged in the future.

Information cards (set A)

These are basic facts about atherosclerosis, nanoparticles, imaging and drug delivery, testing and clinical trials. These come from experts and reliable sources of information.

Issue cards (set B)

These are a range of views and opinions on ethical and social issues to do with nanomedicine. Some things you may agree with; some you may not. They're here to make you think.

Cluster cards (can also be written online)

These are for you to write the statements the group wishes to make and to record the numbers of the cards used to form each cluster. These can also be filled in online.

Blank cards

If anyone thinks of something important that's not included, they can write it down on a blank card.

Yellow cards

If anyone is getting confused or feels someone's hogging the discussion or going off on a tangent, play a yellow card. The dealer will then stop the game and sort things out.

Voting sheets (can also be written online)

There are individual sheets on which each person votes on 4 uses of nanomedicine and 4 questions, giving their reasons.

Feedback form

So that we know who and where your results have come from, what you thought about the game, and what could be improved.

How to play the game

Introduction

Before you start, it's important that everyone knows the basic rules of the game. First of all, the dealer should **explain the basics of the game**. Read out the paragraph below on 'What is This Game About?' and pages 3 and 4 about nanomedicine. Explain that these discussions often work better if people agree on some guidelines beforehand. Then **read out the conversation guidelines** below and check that everyone is happy with them. Next, the dealer should **explain what each of the sets of cards are and what they are for**. You can use the table on page 8.

What is this game about?

This Democs game has been created so that members of the public, like you, use sets of cards to learn about what's involved in nanomedicine and its use to diagnose and treat atherosclerosis, and consider its ethical and social issues. By working with the Story cards, Information cards and Issue cards, you can explore these questions, come to your opinions as a group, and also vote individually on different options. It will examine some questions you may have thought about before, but will probably raise some you haven't. This is an opportunity to learn and discuss

Conversation guidelines

- We are all equal – one person, one voice / vote.
- Your view matters – especially if you are the only one that holds it.
- You have a right to be heard – but so does everyone else.
- Listening is as important as speaking – so work at understanding as well as being understood.
- Find common ground – look for where you agree.
- Don't worry if you are surprised or confused – it might mean that you are learning something new.

Timetable – 90 minute version

Intro	5 mins	The dealer explains what Democs is about, reads the conversation guidelines, and tells the group what each type of card is for. Then the dealer reads out the introductory page 2 about the subject.
Round 1 Stories	10 mins	Players use the Story cards to introduce some of the issues about nanomedicine through people who are imaginary but facing plausible situations.
Round 2 Information	15 mins	Players are dealt a hand of Information cards about nanomedicine. They choose two that interest them, to share with the group. This starts to assemble a shared knowledge 'bank'.
Round 3 Issues	15 mins	Players select from the Issue cards in the same way, opening up ethical and social questions that they think are important, these cards adding to the knowledge 'bank'.
Round 4 Creating clusters	30 mins	The group discusses the topics that are beginning to emerge, linking cards they have chosen in the previous two rounds into clusters. Each issue is made into a statement or question, written on a Cluster card .
Voting and feedback	15 mins	Players vote individually on 8 questions about nanomedicine, on individual Voting sheets and are also invited to say why in their own words. Dealer and Players also fill in the feedback form.

The timings above add up to 90 minutes.

If you have longer, please increase the timings appropriately.

Round 1

Now you've explained how the game works, the first round is a set of stories which introduce the subjects of atherosclerosis and nanomedicine, as seen through various people and situations.

Deal out the story cards to each player.

Story cards (pink)

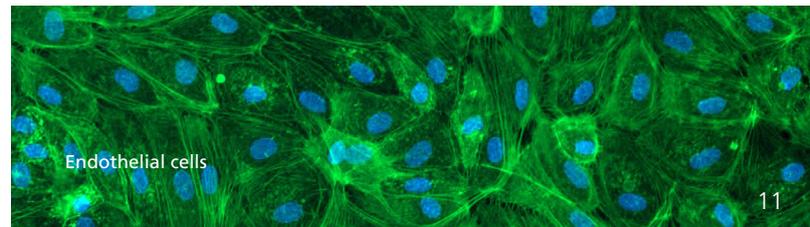
This is where each player is given a story to help them think about the important issues around nanomedicine and atherosclerosis. Tell them that the people and the stories are all **fictitious**, but that the situations portrayed are either real ones, or ones which could be envisaged happening in the future. Some of the technology described in the stories is still in the future, but a lot of it is already happening.

Shuffle the pink story cards and give one to each player.

(There are 8 of these. If you have less than 8 players, ask if someone would read out more than one card.) Each card ends in a dilemma.

In turn, ask each player to read out their card. When they have read it out, they may want to say what they think about it and then other players can respond. But stick to time.

If anyone is very unhappy with reading their card, they can swap it for one of the spares (if there are any), or with one of the other players if both people agree. Ask each player to put their story card in front of them, face up, once they have read it out.



Round 2

Information cards (green)

Round 2 is the first of the main parts of the game where players gather and discuss information and issues about the topic.

Shuffle the green information cards and deal them all out to the players. It doesn't matter if not all players have exactly the same number of cards.

Ask each player to read their hand of cards to themselves, and to pick the two most important cards from their hand.

This could be because they are:

- relevant to the dilemma on their story card (but they don't have to be)
- interesting or surprising
- something they strongly agree with
- something they strongly disagree with.

Once they've chosen their final two cards, set the rest of the cards to one side, they may want to refer to them later in clustering.

Ask players to take it in turn to read one card out loud to the group and explain why they chose it. Once a player has finished reading the card out, other players can say something in response if they want to. Once the discussion has finished, the player puts the card down face up next to their story card. Each player should read 2 cards, so you need to go around twice. Allow discussion to happen but keep an eye on the time.

Round 3

Issue cards (blue)

Do exactly the same thing with the blue Issue cards, deal players a hand of cards, and let them choose and read out two cards, place them on the table, and let the discussion develop.

Round 4

Making statements as a group and creating clusters of cards

In Rounds 1-3, players have put together in the middle of the table the green and blue cards they chose, together with each person's Story card. These cards together form a 'knowledge bank'. The purpose of Round 4 is to try and identify main issues and common themes, and enter these on cluster cards.

There are three ways to create the clusters.

- If your group has already identified some issues, use those as your themes and look among the cards on the table relevant to each of theme, and cluster them together. They can use blue cards, green cards, story cards, or a mixture of all three.
- The alternative way is to start with the cards on the table, to cluster the ones that seem to belong together, and create a theme from them. In practice you may do both. It's up to the players to decide what the clusters are about.
- Some groups have found it helpful to start with one (or more) of the story cards and look for other cards that help tackle the dilemma on the card, and make these into a cluster.

The eventual aim is to create up to 4 or 5 clusters. Once players are happy with a cluster, they need to fill in a **Cluster card**. There are three things to fill in:

- Decide a **title** for the cluster and write this in the first space.
- Then the group should come up with a one or two sentence **statement**, and write this in the second space on the card. This might be a definite opinion, or it might be an unresolved question or dilemma. Try and make the statement as clear as possible so that we understand exactly what you mean.
- Thirdly, write the **card numbers** of all the cards in the cluster on the bottom of the card. This is so we have a record of which cards were used, which is used in our analysis.

Encourage the players to take their time so that everyone is happy with the clusters. Look for consensus as far as possible, but if opposing opinions come out, then these can both be given, perhaps on separate cluster cards.

In the same way, **complete a cluster card for each of the other clusters**. It's perfectly OK to use any card in several clusters. If the players think of things that are important, but which aren't on any of the cards, they can write them on a blank card and add them to the clusters.

Cluster cards are important because they allow you to tell us what you think, in your own words. These opinions and the list of cards you selected both become useful data when we come to analyse the results of all the games.

You can also fill in Cluster cards online, go to:

www.edinethics.co.uk/democs/nanoathero
and follow the link: Fill in Cluster Cards

Round 5 – Voting sheets

In this last round, players are asked to vote on the Voting Sheets. Pass one orange and white Voting Sheet to each player, on which they cast their votes. Unlike the clustering, which is a group exercise, each person has their own sheet to fill in, and each votes as an individual.

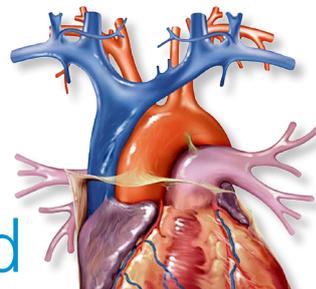
Vote A: each player is invited to vote on the acceptability (or otherwise) of a set of 4 applications of nanomedicine: **Yes; Possibly; Unsure / Don't know; Doubtful; No**. Each player puts a cross to show their opinion. Invite them also to put in their own words why they think so, in the big box underneath the voting area, if they feel they can do so.

On the other side of the sheet:

Vote B: asks players to vote on what extent they agree or disagree with 4 statements about nanomedicine, and again invites them to write why they think so. Point out to the players that they should fill in both sides of the sheet.

You can also fill in Voting Sheets online, go to:

www.edinethics.co.uk/democs/nanoathero
and follow the link: Fill in Voting Sheets



At the end

Thank everyone for taking part and ask them to help you fill in the feedback form. This gives people the chance to say what they thought about the game.

When you have done this, write at the top the date, the place and the name of your group, so that we know which game this was when we come to analyse all the results.

Then take the four or five cluster cards, the Voting card, Comment sheets and any blank cards people have written on and put these with the feedback form into the stamped addressed envelope provided and send this back to us at:

Donald Bruce, Edinethics Ltd., 11/6 Dundonald Street, Edinburgh EH3 6RZ, UK.