

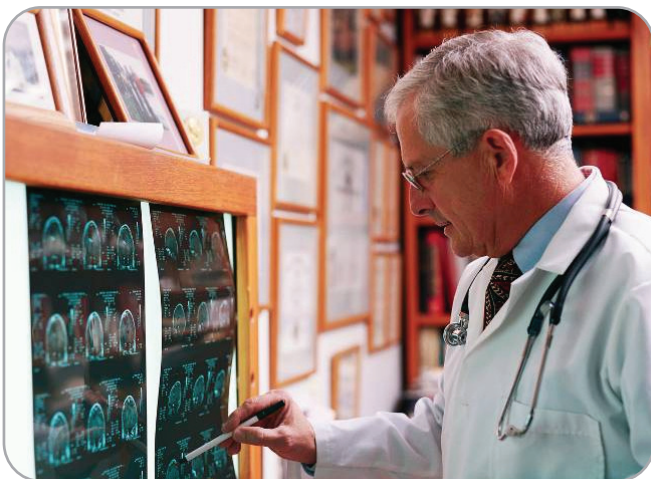
Pioneering cancer therapy using nanoparticles coated with a gold shell

Cancer develops when abnormal cells in the body begin to grow and spread very rapidly. These cancer cells are often not very different from healthy cells, which makes cancer treatment difficult. Most cancer treatments kill some of the healthy cells along with the bad cells, making patients sick, and can suppress the immune system. What if you could design a treatment that would only target the cancer cells and leave the healthy cells untouched? Nanotechnology may one day make this possible. Scientists have many ideas about how nanoparticles might be used to combat diseases.

Researchers at Rice University have demonstrated the use of 120nm diameter nanoparticles coated with a gold shell to target cancer tumours

The nanoshells can be engineered to bind to cancerous cells by binding antibodies or peptides to the nanoshell surface. By irradiating the area of the tumour with near-infrared energy, which passes through flesh without heating it, the gold is heated sufficiently to damage the cancer cells whereas the healthy cells remain untouched....

This behaviour of the gold nanoparticles opens the way to new possibilities for cancer treatment. But there are still open questions, such as: is there a possibility that these new drugs could cause other health issues ?



The Dilemma is :

Should gold-coated nano particles be used to treat patients' bodies before possible health risks have been explored?

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Stakeholder: Patients

You represent patients seeking cancer medical care.

Your primary motivations are:

- Make sure that you can get the medical care you need.
- Ensure that you have a say in what kinds of care you receive.

Consider the following:

- Obviously you want to get the best treatment as soon as possible. It could mean the difference between life and death. There should be no debate and discussion.
- There could be long-term health risks.
- You want to have the right to know which treatment will be used for you.

• Share your opinion with the group

I think.....

- Note: you may come up with additional ideas, don't feel limited by the information above.

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Stakeholder: Multinational Pharmaceutical Company

You represent a company that has developed the gold-coated nanoshells drug and is seeking to begin selling it.

Your primary motivations are:

- To provide a drug that saves life.
- To generate profit for shareholders.

Consider the following:

- This will enable us to develop more cancer-busting drugs which will result in more lives being saved. With profits rising from the sale of more drugs, we can fund more research in the area of treating deadly diseases.
- There could be long-term health risks.
- More drugs sold means more profit for shareholders.
- Cancer patients will welcome any promising innovation, it can't be worse for them than chemotherapy.

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Stakeholder: Insurance Industry

You represent the insurance industry, including both small companies and large Health Maintenance Organizations. Your job is to pay for medical procedures on behalf of patients.

Your primary motivations are:

- Ensure that covered patients get the medical care they need.
- Control decisions about necessary medical care as much as possible.
- Keep medical costs as low as possible to maximise profits.

Consider the following:

- Medical gold-coated nanoshell drugs for cancer offer a significant new tool for saving life.
- If the use of the drug is covered by insurance, the cost of the insurance is likely to be very high. On the other hand, widespread use of the drug may actually lower medical costs.

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Stakeholder: Government

You represent the Government, which makes decisions as to which drugs will be licensed and how they will be available, e.g. through the National Health Service.

Your primary motivations are:

- Protect the citizens from harm (even if they want to behave differently).
- Promote and preserve the technological superiority of the nation.
- Keep costs of public health care low.

Consider the following:

- Gold-coated nanoshell drugs for cancer are an exciting new technology that is highly desirable for use by the health agencies.
- The aim of this new technology is to save lives.
- Should (or can) the government provide national health system treatments which are more expensive than those already available?

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Stakeholder: Doctors

You represent the health care professionals employed by hospitals, including doctors, nurses, and other support staff.

Your primary motivations are:

- Ensure that your patients get the best medical care they can, according to need.
- Protect your role as decision-makers regarding medical matters.

Consider the following:

- The nanoparticles accumulate only in the tumour region so the treatment is extremely localised and healthy tissues are not affected.
- Should we put our faith in a new technology which is less conventional?
- Should everyone get access to the treatment?
- "I have seen people suffering, and I would welcome any better treatment."

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Stakeholder: Child (You)

What is your opinion?