

Reduce, Redesign, Recover, Recycle

IPI speaks with Dr. Nazneen Rahman, CBE, Founder and CEO of YewMaker and Director of the Sustainable Medicines Partnership about why partnerships will be critical in the design, innovation, implementation, and execution of sustainable packaging solutions.

What gap does the Sustainable Medicines Packaging Awards address, and why are these awards needed?

If you want to make medicines more sustainable you have to include packaging front and centre, because the packaging is integral to a medicine’s effectiveness. This is more evident with drug delivery devices like inhalers, where it’s clear the package is part of the product, but it is relevant to all medicines.

But because it’s so integral, pharmaceutical packaging is subject to tight regulations, which presents challenges and makes it tough to be sustainable or to do things differently. That’s why we wanted to shine a light on the ingenuity and engineering required to make good pharmaceutical packaging more sustainable, without compromising function.

If you’re in the packaging industry, you might think it would be easier to start your sustainability journey somewhere else. But we discovered so many interesting ideas and innovations already in practice. We wanted to showcase these efforts because we know it’s taken real commitment at every level to take a pharmaceutical packaging product or process in a more sustainable direction.

We hope the awards serve as an inspiration to others who may believe sustainable innovations are for the future or prefer to wait and see what others have done. We hope the awards inspire people to think: ‘okay, maybe we could do that, because these others have done it.’

Did the first round of awards, which launched in 2022, achieve those goals?

Absolutely. We were really impressed by the calibre of the applications, and with the engagement at the panel event at Connect in Pharma, in Geneva. There were so many people at the event, and there was such a good buzz surrounding it. The panelists were all award finalists and were so engaging and enthusiastic. The first awards and the launch event exceeded our hopes. We were delighted.

Is there anything you plan to do differently this year?

It’s always tempting to fiddle with things, but it’s good to go through a period of solidification. So we haven’t changed anything this year. It’s the same categories, and we’ve again made it very simple to enter. People liked that!



We had people say to us: ‘Oh, I didn’t know something like that would qualify. We’ve got something that probably would be classed as more sustainable.’ We are keen to get people thinking broadly about how to define a sustainable innovation. It can be anything you want it to be, as long as it’s really reducing waste, or making things more efficient or making things more circular.

Is there anything in particular you’re hoping to see this year?

I do like it when people think out of the box a bit – that’s a bad pun – about what a sustainable advance might be. Often sustainability measures align with cost reduction measures. If you want to reduce costs, you’ll often try to reduce materials, or to make things more efficient. It would be great if people can be open to thinking about what that definition of sustainable is and include measures that may also be more resource-effective or more circular.

I think this is important because I would like the pharmaceutical industry to adopt an index of sustainability as a routine consideration in all packaging development. The more people think sustainability is part of their everyday goals and one of the routine things they measure, the sooner it will become standard. So, I’d really love for people to surprise us with how they’ve defined sustainability and sustainability innovation.



What are the most exciting or important advances emerging within the field of sustainable medicines?

The most important advance is the recognition that sustainability is an important multidimensional issue that must be addressed. This change is due to increasing awareness, demand, regulation and legislation, but mostly because people care. They want to know what packaging is made from, how it is disposed of and if it’s sustainable. They want transparency about a company’s ethos, targets and – above all – actions. This shift is driving momentum at a rapid pace, even since last year. I don’t think there’s anyone in pharmaceutical packaging who thinks the issues around sustainability are irrelevant. But I think there are plenty of people who are thinking, ‘I’m not sure what to do about it.’

The other cultural change we are seeing is people thinking that sustainable practices might be a commercial advantage. I think that’s very exciting, because if we can show a sustainable-



focused business is just the best way to do business, we will see catalytic growth in sustainable packaging. And hopefully companies will start to think, 'if we don't build sustainable practices into our business, we might get left behind.' These are important advances.

What about advances on the technological side?

There is exciting research and progress on new materials, and in circularity of materials. It's all very well making something recyclable, but we need to ask: is it actually going to get recycled? That is still complex and challenging, particularly for composite materials like blister packs.

We are seeing some progress on collecting and sorting, for example with invisible markers on packaging that sorting machines can read and separate, but both the technology and logistics of collection need to improve.

We are also seeing advances in recycling processes, particularly in advanced recycling – which is also known as chemical recycling. Advanced recycling involves breaking materials down to the molecular building blocks which are reused. In a fully circular system, the material is broken into constituent molecules that are reused to make the same material. This isn't ready for the frontline, but there are examples, such as polystyrene being broken down to styrene, which are commercially in play, and I believe we will see more examples in the future. Of course, we will need the regulatory processes to certify and approve integration of recycled molecules in packaging to be developed, and this could benefit from more focus and momentum in pharma.

The area I hear less about is the first tenant of circularity –reduction. Manufacturers should optimise the size of their products and make sure that every part is there for a reason, every design choice is there for a reason and not just to make it look better on the shelves. I haven't seen as much of this as I would like to, but the use of computer modeling to design packaging that maximises the function, size, composition, cost, and sustainability of packaging is an exciting, burgeoning field. It has many parallels to the use of modeling to generate new medicines – the capabilities and thinking are already ripe for translation into packaging.

What priorities should the pharma industry have in their sights in the next five to 10 years in terms of sustainability?

A good place to start is with the four circular economy principles

(reduce, redesign, recover, recycle) and work through those priorities. The circular economy is much more than recycling. Rather, it's an alternative framework that redefines the economy around principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

The first thing to look at is reduction at every level: reduce the waste of medicines that are packaged but never used and reduce the size of the secondary or tertiary packaging. It's amazing how much impact the use of smaller boxes packed better could have. I don't think there is any manufacturer who couldn't have an impact in reduction if they chose to. There are plenty of low hanging fruits that could have a big impact in this area.

The second thing is to take a holistic approach. It's not enough to make something recyclable, it also has to be recycled. Of course, you can't do it on your own. Typically, the people who make the packaging are not the people who are throwing away the packaging, or the people who are going to collect the packaging or do something with it.

Partnerships will be critical in the design, innovation, implementation, and execution of sustainable packaging solutions. It's not just about creating new materials or recycling options, but also about connecting all the different pieces to make a real impact. This requires a new way of working together that may be challenging, but it's essential for success. Probably the top priority is to get better data, across the whole supply chain. We need to know and understand how and where packaging is being used, wasted, disposed of. We currently have almost no data on this which makes it very difficult to plan, for example how many sorting and recycling plants are needed. Much of the data is already available – pharmaceutical packaging has barcodes, for example but it isn't connected. I'm as certain as I can be that if we could see these data flows better, people would come up with solutions. It's very hard to change what you can't see.

Nazneen Rahmann



Dr. Nazneen Rahman, CBE, is a physician and scientist. She is the Founder and CEO of YewMaker and Director of the Sustainable Medicines Partnership – a not-for-profit, private-public, multi-stakeholder collaboration of 48 organisations. Rahman is also a Non-executive Director at AstraZeneca where she chairs the Science and Sustainability Committees. Before turning her focus to sustainability, Rahman was Professor of Human Genetics at the Institute of Cancer Research. Rahman and her team at YewMaker launched the Sustainable Medicines Packaging Awards in 2022 to recognise innovations in packaging that make medicines more sustainable and circular. In the run up to the award reception she is due to host at Connect in Pharma on 14 June 2023, Rahman spoke to Melissa Kerschen from Sciad Communications about the awards, the innovations she finds most promising, and the changes she would like to see within the next few years.