

Can nutrition support be sustainable?



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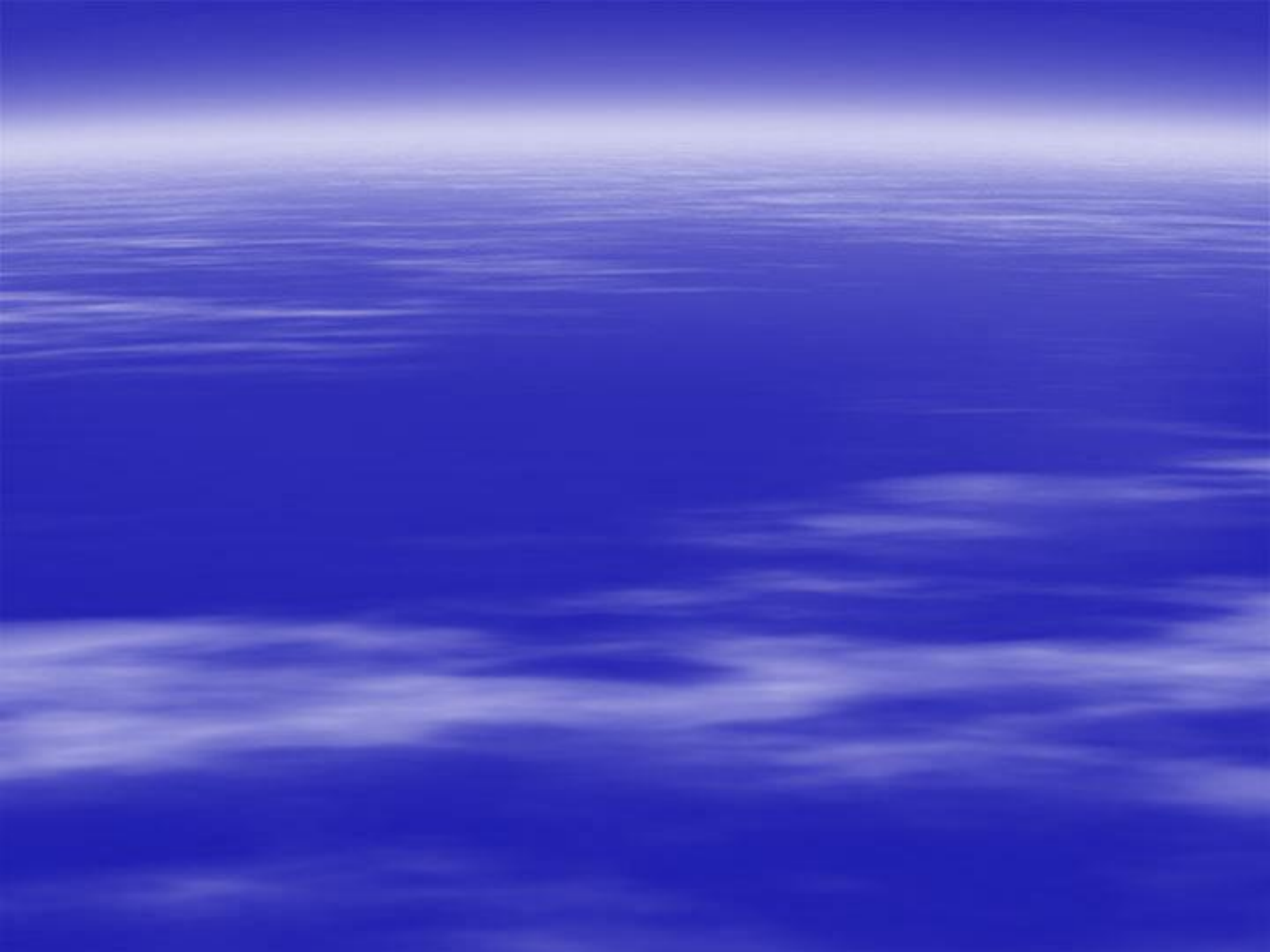
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Can we



the effect of nutrition support
on the environment?





Concerns for sustainability

- healthcare systems contribute significantly to the global environmental footprint (esp in Australia)
- food production and food waste contribute significantly to the global environment footprint
- so hospital food service is an important focus for sustainability efforts

Concerns for sustainability

Nutrition support has higher embedded emissions than normal food:

- mostly imported
- more packaging
- more single-use consumables

Concerns for sustainability

- multiple publications on waste and sustainability in the hospital food service system show food waste could be average 20-30% of total hospital waste (up to 70%?)
- only one of these publications included parenteral nutrition, none included nutrition support consumables, none included enteral nutrition support
- local HEN study (Lina Breik, AuSPEN 2024)

Hospital sustainability audit

- 900 bed tertiary hospital
- all patients receiving any nutrition support products (oral/enteral/parenteral) generated total 45.89kg of waste per day
- negligible proportion of the waste was recycled
- cost of disposal of this waste adds \$7400 per year and 7 tonnes of carbon dioxide equivalents to the hospital's footprint

What was this daily 46kg waste?

- about half (22 kg) was discarded formula
 - unconsumed oral supplements
 - 24-hour bag/bottle changeover waste
- 11kg recyclable plastic containers
- 6kg recyclable paper and cardboard
- 7kg unrecyclable:
 - mixed (glass vial with metal collar, plasticised paper/cardboard, laminated pouches)
 - soft plastics (LDPE)
 - administration set tubing and bags (PVC)

REDUCE

REUSE



RECYCLE

What can we do?

Easy ways to reduce discarded product:

- check if patients are drinking their drinks!
- if swapping to a different enteral or parenteral formula, use up existing bag/bottle first, ask staff to swap it at usual bag/bottle change time
- stock a range of flavours/sizes/formats to enable tailoring regimen to need/preference
- stock management to avoid expiry
- consider controlled reuse if unopened

What can we do?

Easy ways to increase recycling:

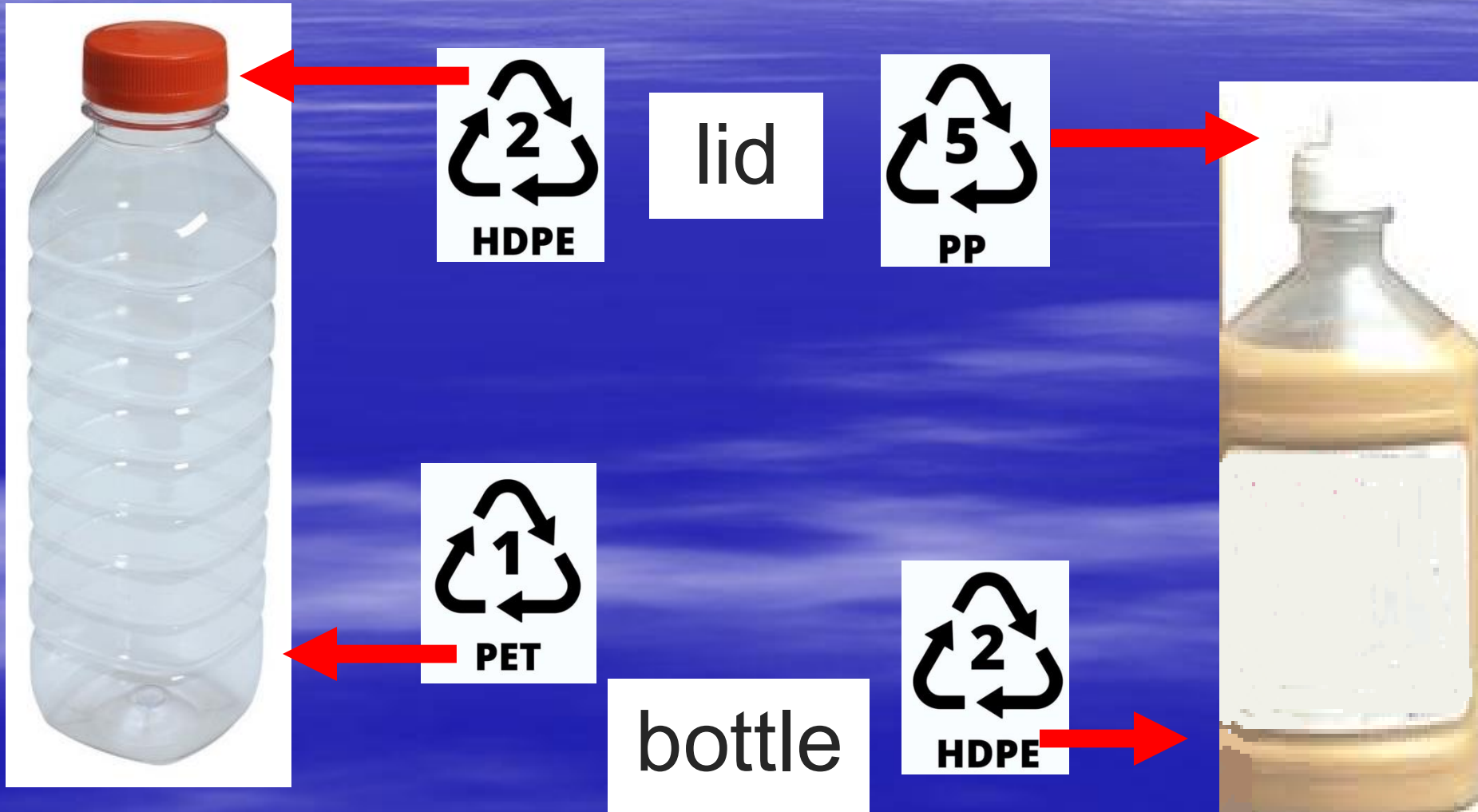
- liaising with hospital's waste department
- availability of bins for recycling
- staff awareness of waste costs

What can we do?

And now the harder questions:

- what about mixed-material products?
- what about local limits on recycling services?
- what is the manufacturer's responsibility?
- how should this feed into our decisions when we are choosing products?

Containers



Containers



lid

bottle

laminate

Containers



nozzle

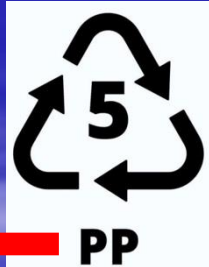
laminate

pouch

Containers



lid
laminated or foil



tub

Containers



bag
and
tubing

injection ports
latex-free
polymer

Wrapping

soft plastic
overwrap



thin card tray
and sleeve



Wrapping

corrugated
cardboard
carton

paper product
information



Recycling? Wrapper

- paper and cardboard
- soft plastics?

Recycling? Containers

- PET  most widely recycled worldwide
- HDPE  also easy to recycle
- PP  very suitable for recycling but actual rates are low worldwide
- PVC  difficult
- LDPE (soft plastics)  difficult

Worldwide only ~9% of plastics are recycled!

Reducing? Containers

- plastics are significantly lighter than other materials (eg one litre bottle: plastic weighs only 5% of glass weight)
- this means transport emissions are much less for plastic than for other materials, eg 30-50% compared to metal or glass

Economist April 19th 2025

Reducing? Containers

- difficulty recycling laminates and mixtures eg feed pouch/bag made of laminated foil and/or plastic mixture (eg PET+PA+PP)
- but one litre pouch has 30g (70%) less plastic than one litre bottle
- unrecyclable bag/pouch better than [unlikely to recycle] recyclable bottle?

Küger M, Kauertz B, Mayer C. Life Cycle Assessment of Packaging Systems for Enteral Nutrition Products: Multilayer Pouch and High-Density Polyethylene Bottle. Journal of Applied Packaging Research. 2021; 13(1). <https://scholarworks.rit.edu/japr/vol13/iss1/2>

Reducing? Containers

- efforts to reduce amount of plastic in each bottle
- plastic straw no longer included
- lighter bottle + no straw saves 25% weight of plastic per bottle

Regulation? Wrapper

- Forest Stewardship Council regulates composition of cardboard cartons (set a minimum level for recycled content as well as checking source: FSC certified forests and wood pulp)

Regulation? Packaging

- Australian Packaging Covenant Organisation (APCO) – commit to waste reduction covenant and submit annual plan for reducing packaging and improving sustainability
- B Corp certification – measure and reduce company's emissions and have a plan for transition to low-carbon
- state procurement policies

Checklist

NUTRITION SUPPORT SUSTAINABILITY AUDIT TOOL

nutrition support products

PRODUCT SELECTION

- ☐ sustainability and recyclability of packaging is considered as part of procurement process
- ☐ stocked product range allows for nutrition support regimens to be individualised to minimise waste

INDIVIDUAL NUTRITION SUPPORT PRODUCTS

- ☐ product comes from a company that has a stated commitment or policy on sustainability
- ☐ company and/or labelling provides clear adequate information on recyclability
- ☐ product is locally manufactured
- ☐ product does not have excessive or unnecessary packaging
- ☐ packaging is most or all recyclable and it is easy to separate recyclable and non-recyclable components

nutrition support processes

ORDERING AND DELIVERY

- ☐ packaging is appropriate to protect product during transport and delivery, shelf life
- ☐ stores of nutrition support items are managed to avoid wasting expired product
- ☐ nutrition support regimens are individualised and regularly reviewed to minimise waste

FOOD SERVICE

- ☐ all food service staff have training on sustainable practices and waste management
- ☐ unused formula is routinely drained before disposal of containers
- ☐ recycling bins are available at the meal tray processing location

NURSING

...QUESTIONS?

