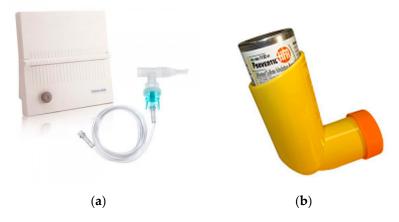
## Supplementary Data: A Comparative Life Cycle Assessment between a Metered Dose Inhaler and Electric Nebulizer

## Brandon Goulet, Lars Olson and Brooke K. Mayer

Figure S1 shows the two devices assessed in this comparative life cycle assessment (LCA) study.



**Figure S1.** (a) DeVilbiss Pulmo-Aide<sup>®</sup> electric nebulizer and (b) 3M's Proventil<sup>®</sup> HFA metered dose inhaler.

Figures S2, S3, and S4 show the GaBi flow diagram inventories of the scenarios modeled: metered dose inhaler, nebulizer with hand washing, and nebulizer with dish washing, respectively.



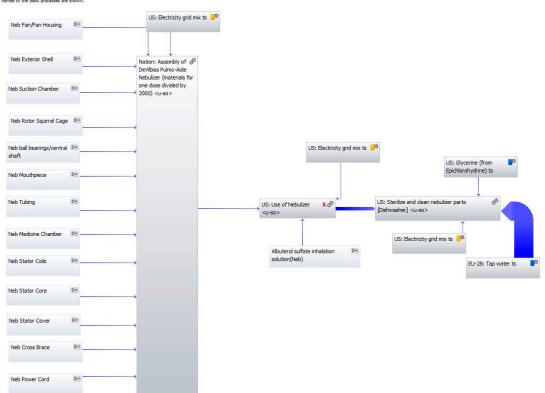
**Figure S2.** Life cycle assessment (LCA) inventory for the manufacturing and use of a metered dose inhaler (MDI).

<b>DeVilbiss Pulmo</b>	Aide Nebulizer - Handwash
Process plan: Mass [kg]	

Neb Exterior Shell	D-1	Nation: Assembly of DeVilbiss Pulmo-Aide Nebulizer (materials for one	US: Electricity grid mix ts			
Neb Stator Coils	<b>D</b> .	dose divided by 2000)				
Neb Rotor Squirrel Cage						
Neb Fan/Fan Housing	DH		us	: Electricity grid mix ts		
Neb ball bearings/central shaft	D D					: Glycerine (from chlorohydrine) ts
Neb Mouthpiece	<b>D</b> =)			S: Use of Nebulizer X	, Sterilize and clean	*
Neb Tubing	(DR)			s: use of Nebulizer X @r iu-so>	nebulizer parts [Hand	
Neb Medicine Chamber	<u></u>		(and the second s	Albuterol sulfate inhalation	Vinegar Solution	EU-28: Tap water ts
Neb Suction Chamber		_	Saline	solution(Neb)		
Neb Stator Core						
Neb Stator Cover	<b>D</b> 4	<b>_</b>				
Neb Cross Brace	D-1					
leb Power Cord	D-)					

**Figure S3.** Life cycle assessment (LCA) inventory for the manufacturing and use of an electrical nebulizer when it is washed by hand.

DeVilbiss Pulmo-Aide Nebulizer - Dishwasher Process plan: Mass [kg] The names of the basic processes are shown.



**Figure S4.** Life cycle assessment (LCA) inventory for the manufacturing and use of an electric nebulizer when it is washed in a dishwasher.