Medical Developments International

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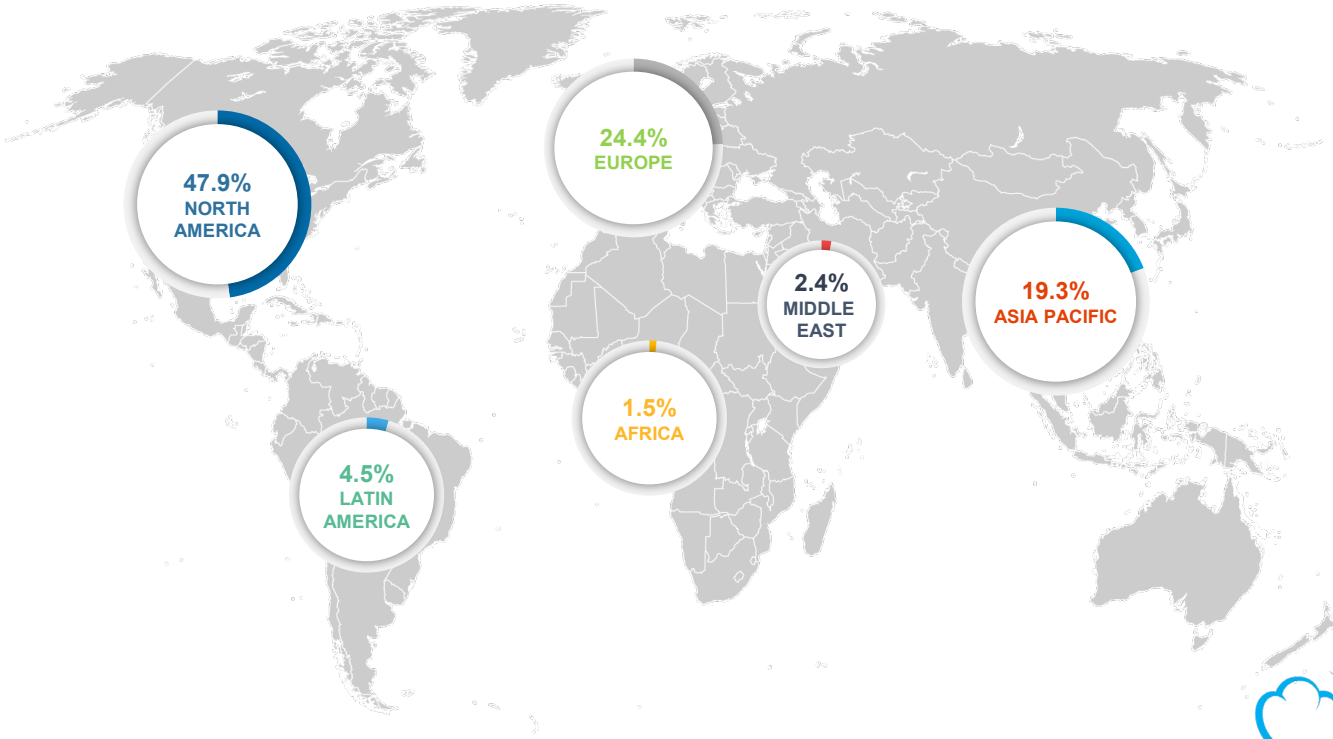
Medical Developments International Limited ABN 14 106 340 667 4 Caribbean Drive, Scoresby, Victoria 3179, Australia www.medicaldev.com

SPACE CHAMBER®

Business Potential: Spacer Regional Market Share (%) 2021



Source: CMI Analysis, Primary Analysis- Coherent Market Insights

SPACE CHAMBER

Why Partner?

Clinical/Educational

- Over 40 guidelines support clinical use
- Respiratory disease impacts all age, race, sex
- COPD readmissions impact IDN revenue
- CEU webinars can be offered for value to members
- Identify rural opportunities for growth and impact

SPACE CHAMBER

Clinical guideline recommendations: Drives impact and captures cost savings

Pressurized metered-dose inhalers (pMDI) should be used with a spacer device, as some people have difficulty coordinating the release of medication with inhalation.[1]

World Health Organization

Spacers should be used by[2]

- All Children, consider using a spacer with a face mask in children younger than 4.
- Patients using a pMDI corticosteroid medication.
- Patients who have trouble coordinating pressing and breathing at the same time.
- Patients taking a reliever medication during an asthma episode.

aafa Asthma and Allergy Foundation of America

pMDI inhalers work best when used with a valved spacer. The biggest mistake made in using an pMDI is not being able to coordinate taking a breath into the lungs while spraying the medicine at the same time. [3,4]

ATS American Thoracic Society

Comparison between Metered Dose Inhalers and Valved Holding Chambers Versus Nebulisers

Research has shown that the drug delivery performance of Metered Dose Inhalers with Valved Holding Chambers (VHCs) are comparable to Nebulisers, with VHCs offering valuable advantages in terms of cost, time, ease of use and patient compliance: .

[Implementation of a Policy Change: Replacement of Nebulizers by Spacers for the Treatment of Asthma in Children - PubMed (nih.gov)]

Isr Med Assoc J. 2015 Jul;17(7):421-4.

Implementation of a Policy Change: Replacement of Nebulizers by Spacers for the Treatment of Asthma in Children

Oded Breuer, David Shoseyov, Eitan Kerem, Rebecca Brooks

PMID: 26357717
Free article

Abstract

Background: Treatment using inhaled bronchodilators for asthma with a metered dose inhaler attached to a spacer device (MDI+S) was shown to be as efficient as nebulizers. Nevertheless, nebulizers remain the treatment of choice in most hospitals.

Objectives: To implement a policy change to improve asthma treatment in pediatric wards and the pediatric emergency department.

Methods: The study was performed in the emergency department and pediatric wards of a university medical center. The study group comprised all children admitted with a diagnosis of asthma necessitating treatment. The medical and nursing staff of both the pediatric emergency department and the pediatric wards was trained how to use metered dose inhalers attached to spacers on a regular basis in asthmatic pediatric patients. At a preset date nebulizers were replaced by spacers and their use was monitored by the supervising physician. Salbutamol was administered by a metered dose inhaler (100 µg/puff) attached to a spacer device. The number of puffs was determined by severity of disease according to GINA recommendations. After 2 years the outcome and cost analysis were examined.

Results: During 3 years since the initial policy change 92.5%, patients were treated with spacers throughout their hospital stay (emergency department and pediatric ward). Costs were reduced by an estimated 63%.

Conclusions: In view of its many advantages, replacing nebulizers by MDI+S for the treatment of acute asthma.is, feasible, if performed in collaboration with the staff, hospital authority and patients.

https://pubmed.ncbi.nlm.nih.gov/9308864/

Review > Arch Pediatr Adolesc Med. 1997 Sep;151(9):876-82.
doi: 10.1001/archpedi.1997.02170460014003.

Metered-dose inhaler accessory devices in acute asthma: efficacy and comparison with nebulizers: a literature review

I Amirav [1], M T Newhouse

Affiliations + expand

PMID: 9308864 DOI: 10.1001/archpedi.1997.02170460014003

Abstract

Objectives: To evaluate the current literature about the efficacy of providing inhaled medications by metered-dose inhalers and accessory devices (MDI/ADs) to children with acute asthma and to compare it with the current standard of care, small-volume nebulizers (SVNs).

Data sources: Online computer and manual searches in English-language journal articles published between 1980 and 1996.

Study selection: Seventeen prospective clinical trials that have used MDI/ADs in the treatment of acute asthma in children were retrieved. Ten randomized controlled studies that included a comparison with SVN treatment were selected.

Data extraction: Studies were assessed qualitatively by their subject characteristics, design, intervention procedures, outcome measures, and results.

Data synthesis: There were marked variations in types of MDI/ADs and in doses administered between and within studies. Major outcome measures included pulmonary function measurements and clinical scores. All studies found MDI/ADs to be effective in the treatment of infants and children with acute asthma. Among those who compared this treatment with SVN, 2 found the MDI/AD superior and the rest found it as effective as the SVN.

Conclusions: The data support the effectiveness of MDI/ADs as first-line treatment in acute childhood asthma. In view of clinical benefit, safety, lower cost, personnel time, and speed and ease of administration of MDI/ADs compared with SVNs, MDI/ADs should be considered the preferred mode of treatment of children with acute asthma.

SPACE CHAMBER®

Financial

- WAC offers savings compared to leading brands
- Minimum 2 case order quantity (minimal capital investment)
- Increase sourcing options to build consistency of habit
- Backorders are common in this product category

NDC	Brand Name	Generic Name	Labeler Name	WAC Package Price	%
42135-0100-00	COMPACT SPACE CHAMBER	inhaler, assist devices	MEDICAL DEVELOP	$ 5.40	
04351-0985-10	AEROCHAMBER MV	inhaler, assist devices	MONAGHAN MEDICA	$ 8.19	52%
04351-0797-50	AEROCHAMBER Z-STAT PLUS	inhaler, assist devices	MONAGHAN MEDICA	$ 8.82	63%
04351-0798-10	AEROCHAMBER PLUS FLOW-VU	inhaler, assist devices	MONAGHAN MEDICA	$ 11.41	111%
42135-0100-01	COMPACT SPACE CHAMBER	inhaler,assist device with small mask	MEDICAL DEVELOP	$ 12.95	
42135-0100-02	COMPACT SPACE CHAMBER	inhaler,assist device with medium mask	MEDICAL DEVELOP	$ 12.95	
42135-0100-03	COMPACT SPACE CHAMBER	inhaler,assist device with large mask	MEDICAL DEVELOP	$ 13.70	
08373-7478-00	OPTICHAMBER DIAMOND	inhaler, assist devices	PHILIPS RESPIRO	$ 16.16	199%
04351-0858-10	AEROVENT PLUS	inhaler, assist devices	MONAGHAN MEDICA	$ 17.56	225%
04351-0887-10	AEROCHAMBER Z-STAT PLUS	inhaler,assist device with small mask	MONAGHAN MEDICA	$ 17.64	36%
04351-0787-10	AEROCHAMBER Z-STAT PLUS	inhaler,assist device with medium mask	MONAGHAN MEDICA	$ 17.64	36%
04351-0807-10	AEROCHAMBER Z-STAT PLUS	inhaler,assist device with large mask	MONAGHAN MEDICA	$ 19.29	41%
08373-9823-00	OPTICHAMBER DIAMOND	inhaler,assist device with small mask	PHILIPS RESPIRO	$ 24.16	86%
08373-9826-00	OPTICHAMBER DIAMOND	inhaler,assist device with medium mask	PHILIPS RESPIRO	$ 24.16	86%
04351-0889-10	AEROCHAMBER PLUS FLOW-VU	inhaler,assist device with medium mask	MONAGHAN MEDICA	$ 24.26	86%
04351-0808-10	AEROCHAMBER PLUS FLOW-VU	inhaler,assist device with large mask	MONAGHAN MEDICA	$ 24.26	77%
08373-9827-00	OPTICHAMBER DIAMOND	inhaler,assist device with large mask	PHILIPS RESPIRO	$ 24.96	82%

SPACE CHAMBER®

Marketing

- Market share growth opportunity
  - Convert existing orders for cost savings /profit
  - Grow market share with education and targeted initiatives
  - Possible disruption of brand with ~40% market share
- Field Force collaboration with specific targets/messaging (MDI and existing partnerships)
- Collaborative marketing spend budget from MDI
- Bundling initiatives based on existing respiratory sales
  - See attached resources

Space Chamber™ Vs Competitors

Parameters	Space Chamber	AeroChamber	Optichamber
Extensive range	✓	✓	✗
Correct use indicator (whistle or similar)	✗	✓	✓
Valve action visibility	✓	=	=
Low Resistance Cross Valve Technology™	✓	✗	✗
Dishwasher safe (cleaning convenience)	✓	✓	✗
Anti-static masks	✓	✓	✗
Mask range (small, medium, large)	✓	✓ **(not interchangeable)**	✗
Price	**$**	**$$**	**$**

SPACE CHAMBER®

All asthma & COPD patients should be using a spacer/valved holding chamber with their pMDI[1]…

…but how many are?

SPACE CHAMBER®

Asthma & Chronic Obstructive Pulmonary Disease (COPD) are chronic respiratory conditions that are associated with a significant economic costs.[1]

Asthma

- 25 million or 1 in 13 Americans were diagnosed in 2010.
- 9.8 million doctors' visits accounted for asthma in 2016.
- 1.6 million ER visits were accounted to Asthma in 2018.[2]

COPD

- 16.4 Million diagnosed of any form of COPD in 2018.
- 10.3 million doctors' visits accounted for COPD in 2010.
- 1.4 million ER visits among Americans 25 and older in 2010.

Respiratory Disease

- Major component of chronic airway disease
- 4th leading cause of death in the US

Consider every asthma or COPD patient – age and sex

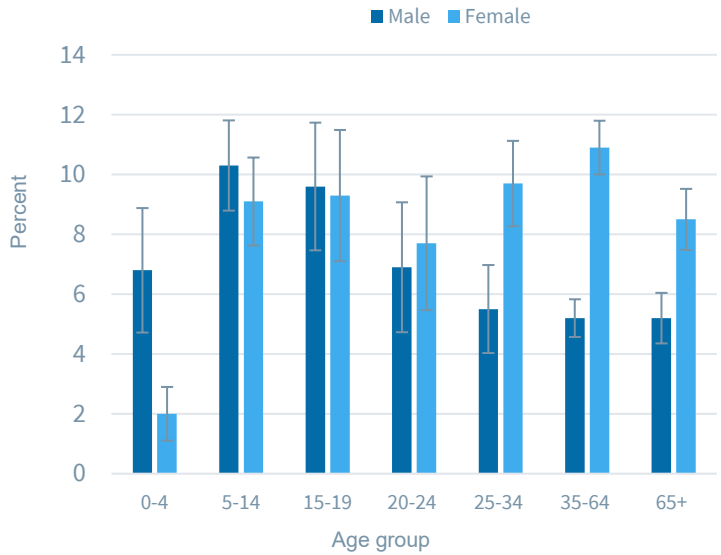


Figure 1: Extracted from CDC: Prevalence of asthma, by sex and age, 2017 [1]

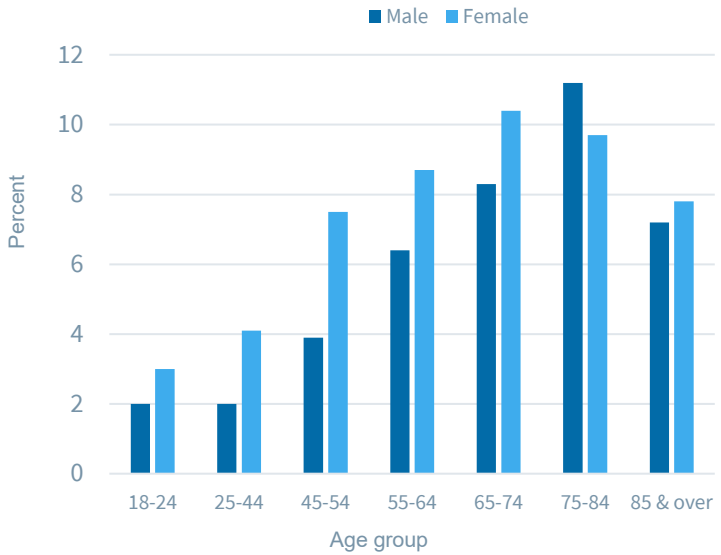
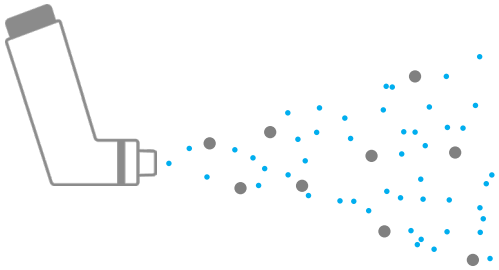


Figure 2: Extracted from CDC: Prevalence of COPD, by sex and age, 2007–09[2]

SPACE CHAMBER

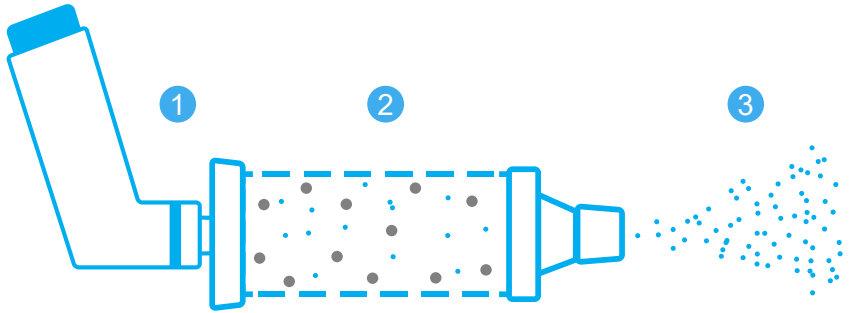
Why do spacers matter?

pMDI Alone



Aerosolized medication from an inhaler consists of large and small particles, delivered at high speed, usually over 90KM/PH[1] .

pMDI with Spacer Device[2]

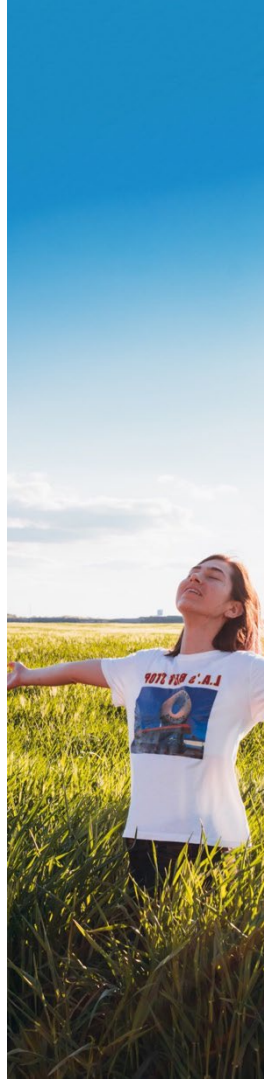


1. Large and small particles from the puffer enters the spacer
2. Particles slow down, Large particles disperse, small particles stay suspended
3. Only small particles exit from the spacer as fine mist into the patient's lungs

SPACE CHAMBER®

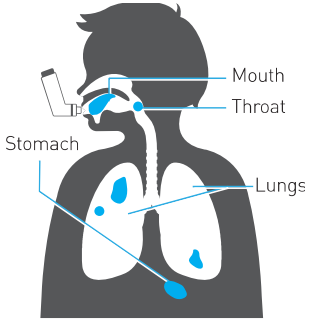
Inhalers alone usually only deliver 1/5 of the prescription medication into the lungs.[1]

- Without a spacer, pMDI devices are likely used sub-optimally, however only 15% of asthma and 40% of COPD patients use a valved holding chamber.
- **One of the significant weaknesses of pMDI devices is their tendency to be used sub-optimally or incorrectly.[1]**
- **Maximizing drug deposition using a pMDI requires the following conditions:**
  - A slow (30 L/min), deep inhalation starting immediately after pMDI activation.[2]
  - Holding breath of ≥4 s and optimally up to 10 s.[2]
- **5 - 10% of patients treated with Inhaled Corticosteroids (ICSs) report adverse effects in the mouth & throat resulting in immediate discomfort and poorer treatment adherence[4]**



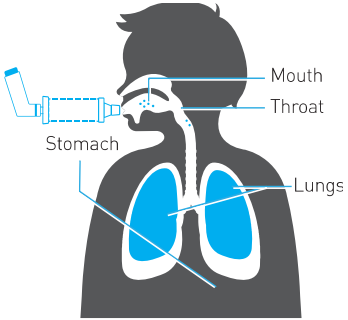
Reduce problems with poor inhaler technique

pMDI Alone



- Less drug delivered to the lower airways[1]
- More drug is deposited in the mouth & throat[2,3]

pMDI with Spacer Device



- Improve inhaler technique[2]
- More drug delivered to the lower airways[4]
- Less drug is deposited in the mouth & throat.[2,3]

- **Reduces the requirement to coordinate inhalation with actuation[2]**
- **Increase lung deposition of medication[2]**
- **Reduce likelihood of adverse events such as oral candidiasis[2,3]**

SPACE CHAMBER®

Space Chambers, creating more than just a spacer

The Space Chamber® Anti-static Spacer is a hand-held, portable valved holding chamber (VHC), that is placed between a pressurized metered dose inhaler (pMDI) and the patient's mouth, to function as a reservoir from which an aerosol medication is dispensed to minimize delivery of large aerosolized particles.[1]

SPACE CHAMBER®

Cross Valve Technology™

- Valve opens upon inhalation
- Provides assurance that medication is being inhaled correctly

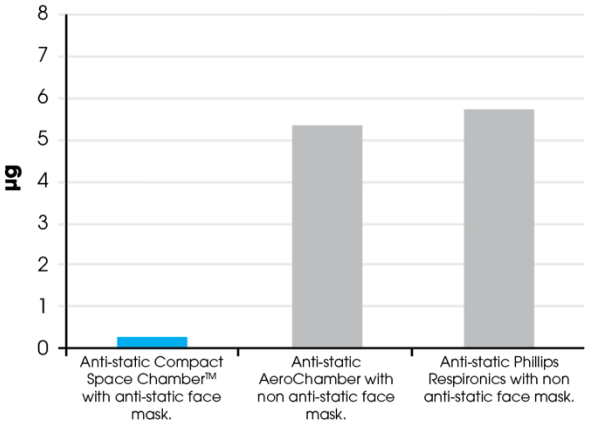
- Valve closes upon exhalation
- Easy to exhale through the mouthpiece

- Space Chamber® spacers contain a one-way valve behind the mouthpiece which is based on Cross Valve Technology™
- The Cross Valve Technology™:
  - Features a robust designed valve that works effectively when the spacer is held at different angles.
  - Ensures a very low resistance when inhaling your medication.
  - Allows you to easily breathe out through the chamber.
  - Prevents exhaled breath from re-entering the spacer.
  - Visually track inhalation through the clear window.

Antistatic properties, no priming required[1]

- One known cause of variable dose delivery from spacers is static charge.[2]
- Spacers that are highly charged with static forces deliver less drug compared to those spacers with an antistatic coating.[2]
- Unlike non-antistatic spacers, Space Chamber® spacers and the antistatic facemask can be used straight out of the box, without the need for priming or washing before first use. [1]
- Space Chamber® antistatic spacer and antistatic facemask combination delivers a full antistatic journey of medication from pMDI to the lungs. [1]

Deposition of pMDI medication on a face mask per actuation[4]



SPACE CHAMBER®

Anti-Static
Compact Space Chamber®

℞ Only

BENEFITS
Antistatic no priming required – reduces medication waste Can be used straight out of the pack
Dishwasher safe for convenient and easy cleaning
BPA and Latex free
Fits pMDI's with standard 22 mm diameter fitting and most face masks including the Compact Space Chamber™ anti-static masks available for ages newborn -adult
1 year guarantee, 3-year minimum shelf life

Product Name	Size	UPC#	NDC#	WAC
Anti-static Compact Space Chamber™	1	842135100008	42135 0100 00	$5.40

SPACE CHAMBER®

Anti-Static Compact Space Chamber® & Mask Combination Pack

℞ Only

BENEFITS

Antistatic no priming required – reduces medication waste
Can be used straight out of the pack

Dishwasher safe for convenient and easy cleaning

BPA and Latex free

Fits p MDI' s with standard 22 mm diameter fitting and most face masks including the Compact Space Chamber ™ anti-static masks available for ages newborn -adult

1 year guarantee, 3-year minimum shelf life

Convenient value packs are cheaper to purchase than purchasing the spacer and mask separately

Product Name	Size	UPC#	NDC#	WAC
Anti-static Compact Space Chamber™ with Small Anti-static Mask	1	842135100084	42135 0100 08	$12.95
Anti-static Compact Space Chamber™ with Medium Anti-static Mask	1	842135100091	42135 0100 09	$12.95
Anti-static Compact Space Chamber™ with Large Anti-static Mask	1	842135100107	42135 0100 10	$13.70

SPACE CHAMBER®

Key messages – Opportunity Market Share Growth and Clinical Cost Savings

Clinical guidelines state a pMDI should be used with a spacer device,

yet only **15%** of asthma patients

and **40%** of COPD patients use a spacer.[2,3]

- Asthma & COPD contribute considerably to the population's disease burden.[1]
- Space Chamber® spacers increase the delivery of the drugs respirable fraction and decrease coarse particle deposition.[6]
- A spacer can increase drug delivered to the lower airways and reduce likelihood of local adverse effects of the mouth and throat. [4,5]
- When recommending a valved holding chamber, anti-static coating and cross valve technology provide additional benefits.

SPACE CHAMBER®

Summary of KSMs

MDI provides high quality, clinically proven products

MDIs global scale allows highly cost competitive pricing

MDI holds SpaceChamber® stock in the US with all key wholesale partners

MDI is a proven spacer partner of choice across sales, marketing, education and branding

Distributors:

Product Name	Generic Name	Size	ITEM #	NDC #	WAC
Compact Space Chamber	Inhaler Assisted Device	1	842135100008	42135-0100-00	$ 5.40
Compact Combo Pack w/ Anti Static Small Silicone Mask	Inhaler Assisted Device plus mask	1	842135100084	42135-0100-08	$ 12.95
Compact Combo Pack w/Anti Static Medium Silicone Mask	Inhaler Assisted Device plus mask	1	842135100091	42135-0100-09	$ 12.95
Compact Combo Pack w/ Anti Static Large Silicone Mask	Inhaler Assisted Device plus mask	1	842135100107	42135-0100-10	$ 13.70
Amerisource Bergen					
Compact Space Chamber	Inhaler Assisted Device	1	10165336	42135-0100-00	
Compact Combo Pack w/ Anti Static Small Silicone Mask	Inhaler Assisted Device plus mask	1	10233910	42135-0100-08	
Compact Combo Pack w/Anti Static Medium Silicone Mask	Inhaler Assisted Device plus mask	1	10233903	42135-0100-09	
Compact Combo Pack w/ Anti Static Large Silicone Mask	Inhaler Assisted Device plus mask	1	10233809	42135-0100-10	
Anda Pharmaceuticals, Inc.					
Compact Space Chamber	Inhaler Assisted Device	1	854480	42135-0100-00	
Compact Combo Pack w/ Anti Static Small Silicone Mask	Inhaler Assisted Device plus mask	1	854578	42135-0100-08	
Compact Combo Pack w/Anti Static Medium Silicone Mask	Inhaler Assisted Device plus mask	1	854579	42135-0100-09	
Compact Combo Pack w/ Anti Static Large Silicone Mask	Inhaler Assisted Device plus mask	1	854580	42135-0100-10	
Cardinal Health					
Compact Space Chamber	Inhaler Assisted Device	1	5256433	42135-0100-00	
Compact Combo Pack w/ Anti Static Small Silicone Mask	Inhaler Assisted Device plus mask	1	5599394	42135-0100-08	
Compact Combo Pack w/Anti Static Medium Silicone Mask	Inhaler Assisted Device plus mask	1	5599402	42135-0100-09	
Compact Combo Pack w/ Anti Static Large Silicone Mask	Inhaler Assisted Device plus mask	1	5599410	42135-0100-10	
McKesson					
Compact Space Chamber	Inhaler Assisted Device	1	3597879	42135-0100-00	
Compact Combo Pack w/ Anti Static Small Silicone Mask	Inhaler Assisted Device plus mask	1	3597861	42135-0100-08	
Compact Combo Pack w/Anti Static Medium Silicone Mask	Inhaler Assisted Device plus mask	1	3597853	42135-0100-09	
Compact Combo Pack w/ Anti Static Large Silicone Mask	Inhaler Assisted Device plus mask	1	3597846	42135-0100-10	

Medical Developments International

Contact Information:

Medicaldev.com

National Account Manager – Institutions

Steph Hall shall@medicaldev.com
803-220-6144

Other distributors include:
Anda; Cardinal@ Home; Louisiana Drug; Edge Park; Kinray; Value Drug; South Points; Prescription Supply; Masters Rx as of 9/10/23.

Local source contracts are available. Inquire if annual is over 80,000 for further discounts.
MDI supports market share growth with personalized marketing materials and budget spend.

SPACE CHAMBER®

How can MDI partner to help more members help their patients?

SPACE CHAMBER®

Medical Developments International (MDI) is one of Australia's leading specialized healthcare companies since 1971.

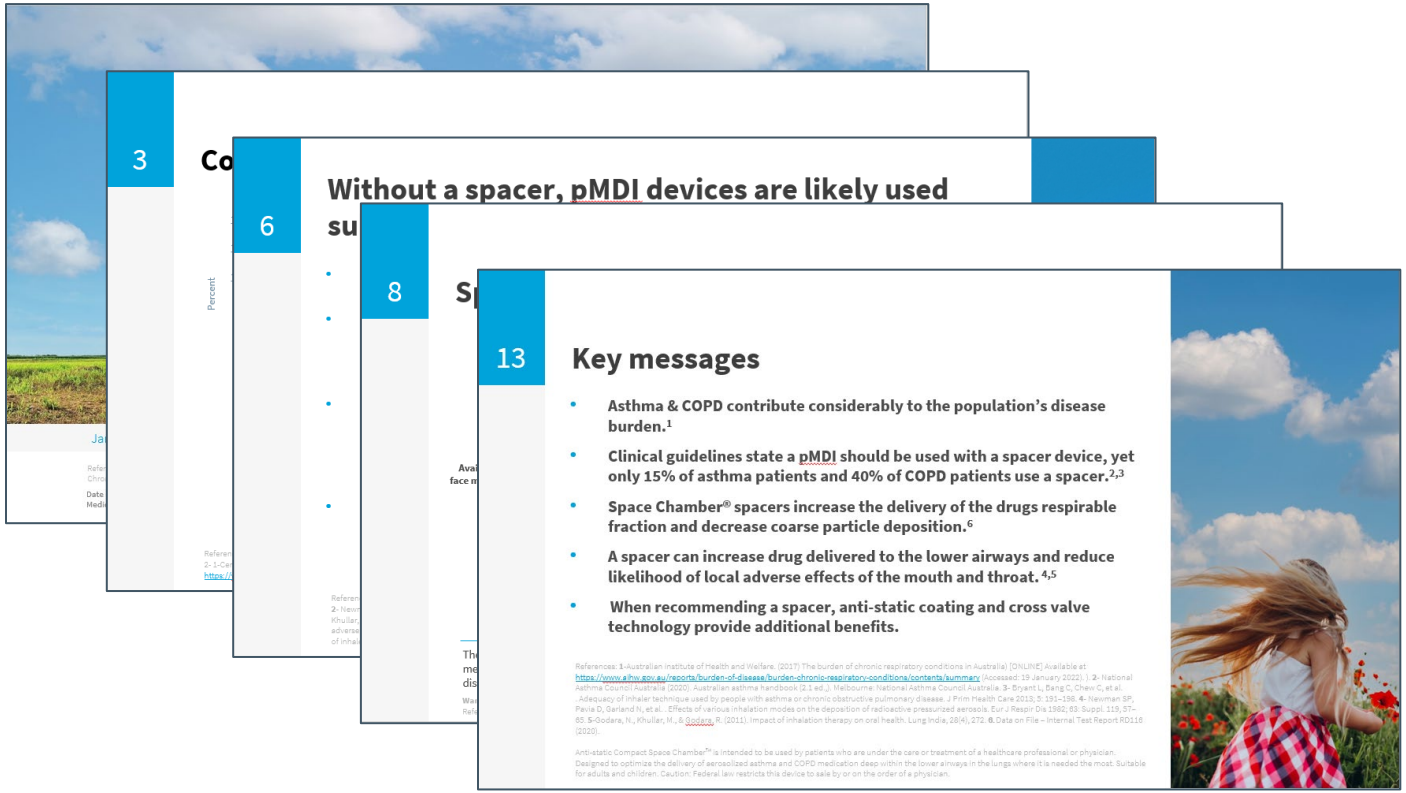
MDI

- MDI offers a complete range of Brand and Private label products to optimize Asthma/COPD treatment in patients of all ages from neonates through adults.
- MDI has been operating in the USA since 2016 with substantial growth in all years
- MDI offers a full line of patented high quality and low-cost respiratory devices for use with a standard Asthma/COPD Inhaler.
- MDI currently has both Direct, Local and International distributors in USA/Canada, Europe, Asia and Australia – under the Space Chamber (Global) and Breath-A-Tech (Australian) brands.

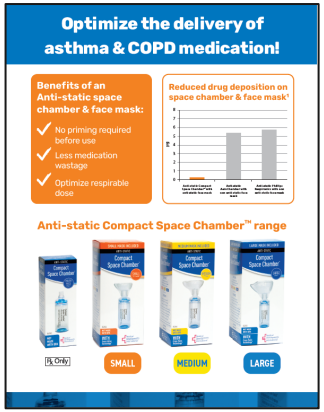
Space Chamber

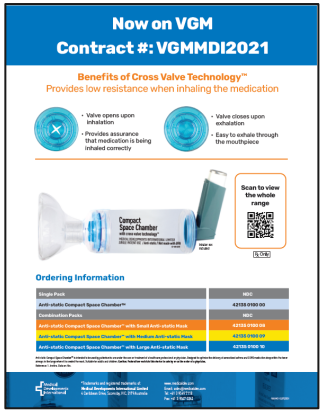
- Antistatic Spacers and Antistatic masks are available in pharmacies, hospitals, medical practices and Aged Care facilities domestically and internationally.
- Proprietary low resistance, one-way Cross Valve Technology is allows visible valve action confirmed through a transparent chamber allowing a patient to see rather than relying on hearing
- Interchangeable antistatic masks fit standard 22mm diameter pMDI inhalers and provide full antistatic delivery to reduce medication waste and side effects for patients.
- 1 year manufacturer guarantee, 3+ year shelf life

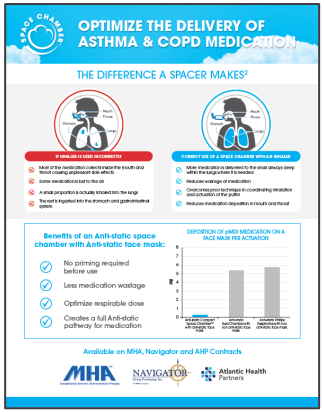
Available Tools – Clinical Education

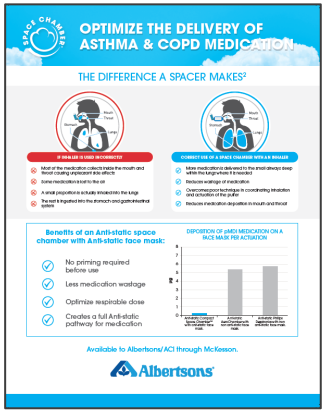


Generic Fliers

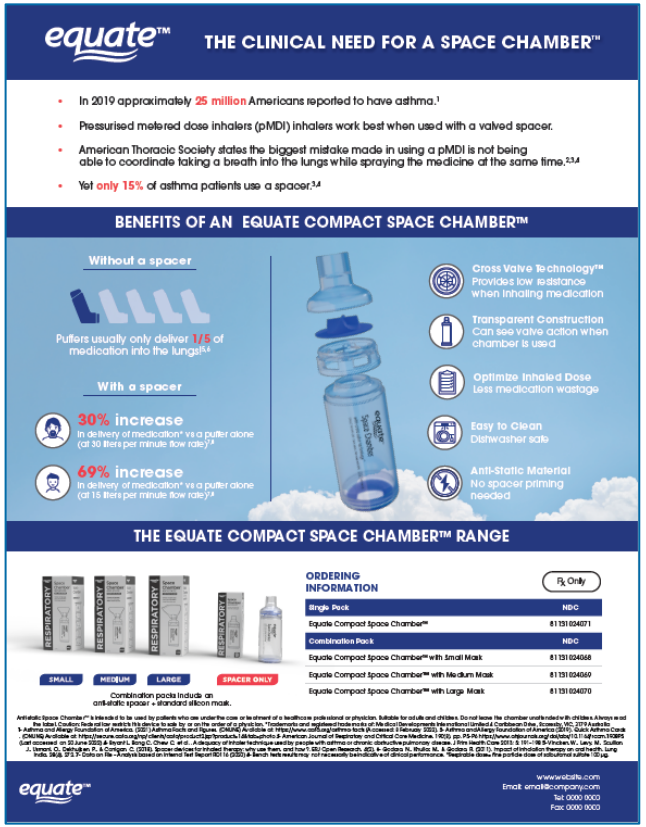




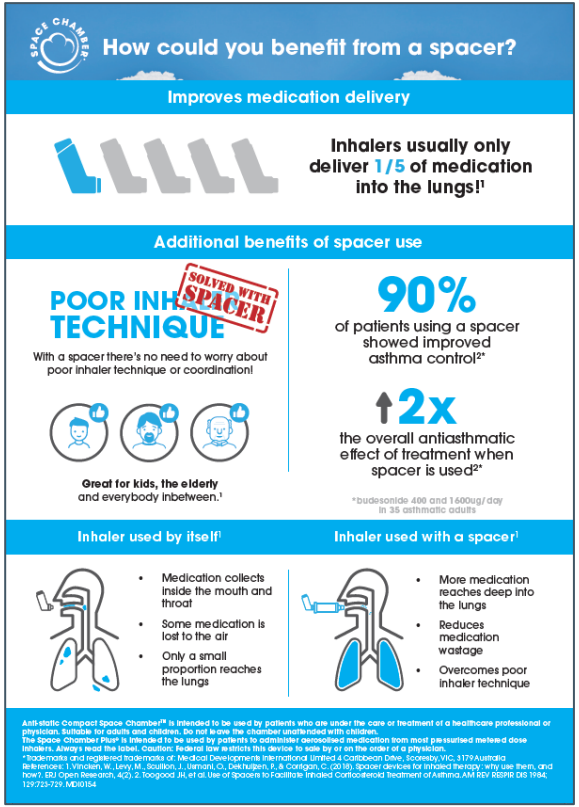




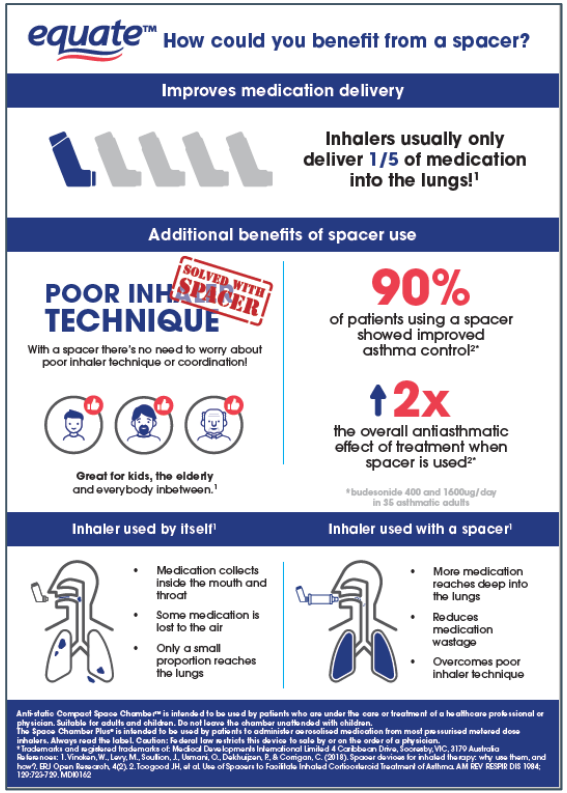
Pharmacist awareness tools



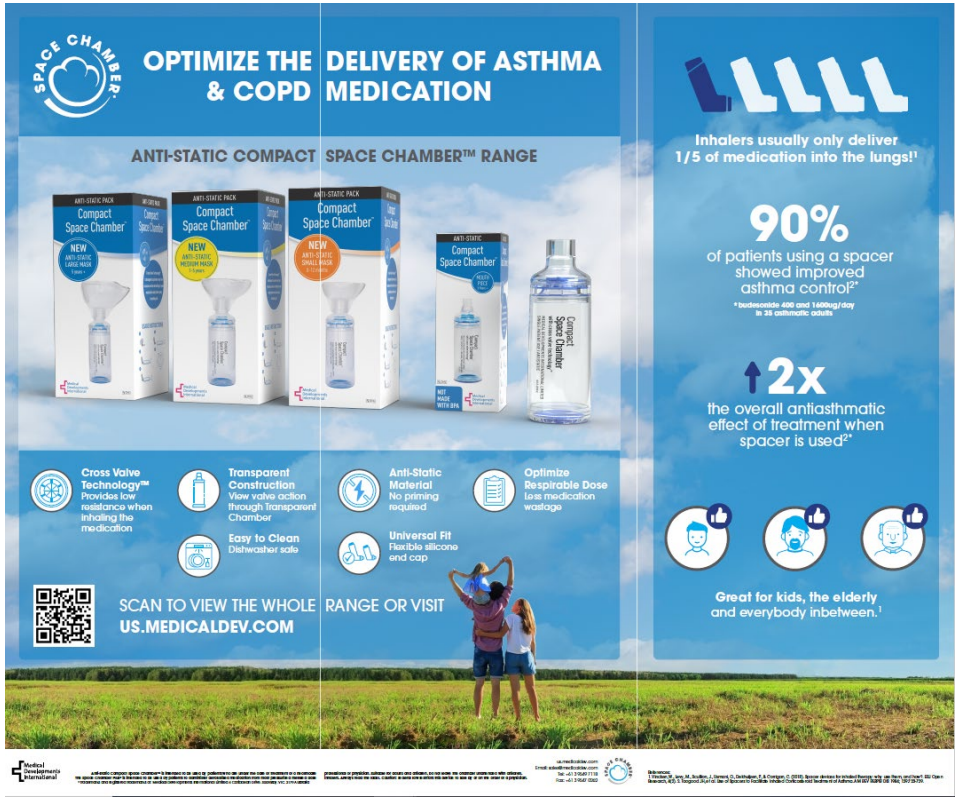
Patient Education – Tear-off Pad

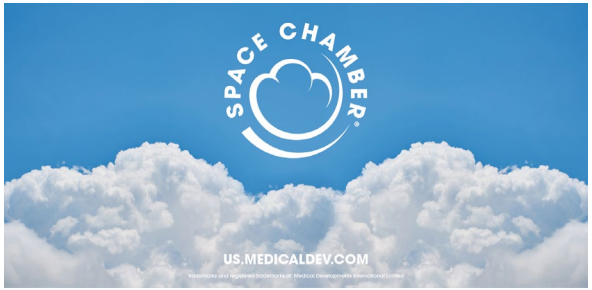


Patient Education – Tear-off Pad (Equate)

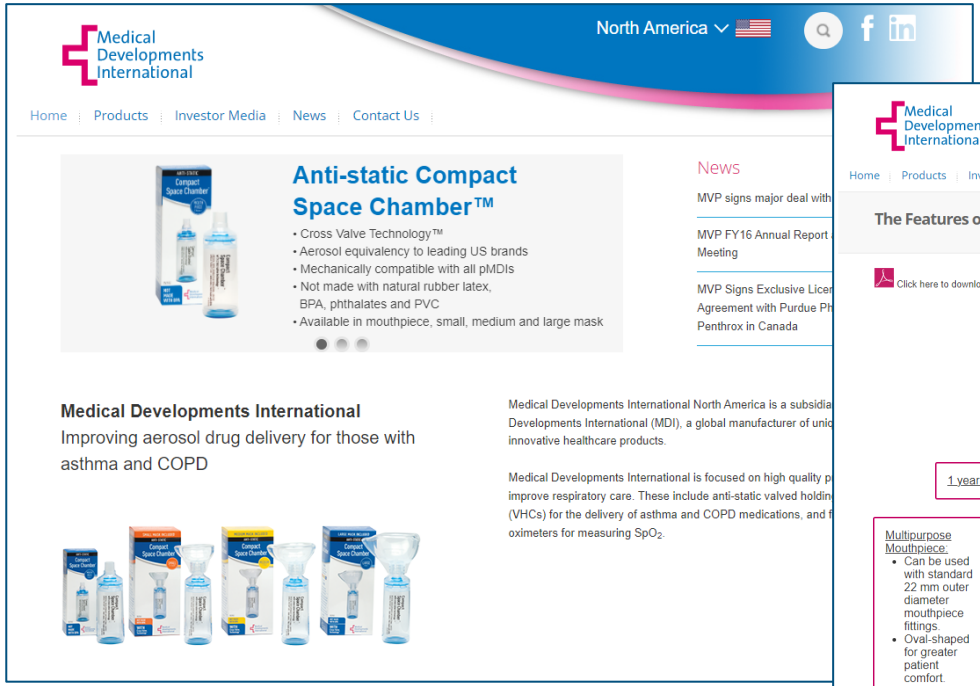


Display Materials





US Website


Medical Developments International
North America
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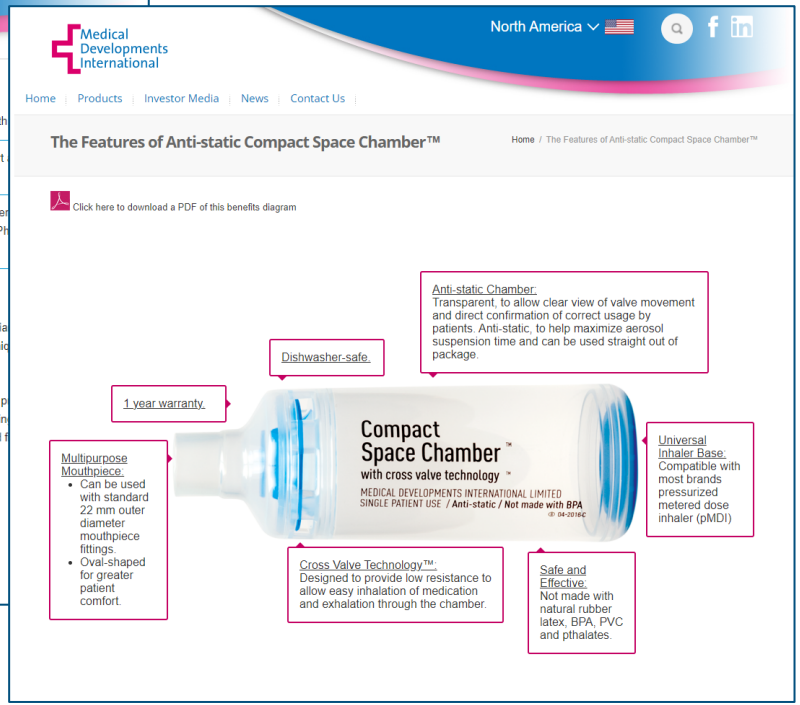
Anti-static Compact Space Chamber™
• Cross Valve Technology™
• Aerosol equivalency to leading US brands
• Mechanically compatible with all pMDIs
• Not made with natural rubber latex, BPA, phthalates and PVC
• Available in mouthpiece, small, medium and large mask
News
MVP signs major deal with
MVP FY16 Annual Report
Meeting
MVP Signs Exclusive Licer
Agreement with Purdue Ph
Penthrox in Canada
Medical Developments International
Improving aerosol drug delivery for those with asthma and COPD
Medical Developments International North America is a subsidia
Developments International (MDI), a global manufacturer of uniq
innovative healthcare products.
Medical Developments International is focused on high quality p
improve respiratory care. These include anti-static valved holdin
(VHCs) for the delivery of asthma and COPD medications, and f
oximeters for measuring SpO2.


Medical Developments International
North America
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The Features of Anti-static Compact Space Chamber™
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Click here to download a PDF of this benefits diagram
Anti-static Chamber:
Transparent, to allow clear view of valve movement and direct confirmation of correct usage by patients. Anti-static, to help maximize aerosol suspension time and can be used straight out of package.
Dishwasher-safe.
1 year warranty.
Compact Space Chamber™
with cross valve technology™
MEDICAL DEVELOPMENTS INTERNATIONAL LIMITED
SINGLE PATIENT USE / Anti-static / Not made with BPA
Multipurpose Mouthpiece:
• Can be used with standard 22 mm outer diameter mouthpiece fittings.
• Oval-shaped for greater patient comfort.
Universal Inhaler Base:
Compatible with most brands pressurized metered dose inhaler (pMDI)
Cross Valve Technology™:
Designed to provide low resistance to allow easy inhalation of medication and exhalation through the chamber.
Safe and Effective:
Not made with natural rubber latex, BPA, PVC and pthalates.