

## PumpSmart

### Abstract (Full Course)

The breast pump. One of the most common and easily accessible tools in lactation. Yet 32 years after the first double electric breast pump hit the market, we are still trying to figure out how these devices work. We understand the mechanics of the device, but how this piece of durable medical equipment integrates into the care of a dyad is still a gray area. When one is indicated and which ones may be indicated for use aren't always as clear. In this course, we'll cover the history, the mechanics, the tools & accessories, and real life clinical integration of this tool.

### Knowledge Gap

Breast pump use is not covered in many clinical competencies, thus leaving lactation professionals behind the curve in guiding implementation in lactation situations.

### Objectives (3-5)

After this presentation, the learner will be able to:

Discuss the history of the breast pump

Identify what motivations parents may have for pumping

Discuss the physiology of pumping

Identify and explain the function of common pump parts

Recognize common uses and troubleshooting tips for breast pumps & their parts

Educate parents on managing milk supply via pumping

### Section 1 – Introduction to Pumping background (1 hour)

#### Section 1 Abstract

In this section, we'll cover the history of the breast pump including types and the WHO Code stance on them. Understanding why parents do what they do is important so that we know how to best serve them. Because of that, we'll cover motivations and situations where pumping may be indicated as well as a case study.

## Introduction (5min)

- About Nichelle Clark
- Why Nichelle Clark?

## Background on pumps (10min)

- History on introduction of multi and single user pumps
- Timeline on introduction of multi and single user pumps
- Research/Why don't we know more about these durable medical devices
- WHO Code
  - What the Code covers on pumps
  - What it doesn't cover on pumps

## Motivations for pumping (15min)

- Medical necessity
  - Immediately following birth
  - Preterm infants
  - Special care situations
- Relief bottles
  - Medically indicated
  - Mental health support
  - Family inclusion
- Increasing supply
- Latch issues
- Returning to work
  - Case Study
- Personal preference

- Building milk stash
- Weaning from nursing
  - Case Study

#### Physiology of pumping (30min)

- Review of hormonal stimulation & MER
- Pumping and milk supply
  - Increase supply
  - Maintain supply
  - Oversupply from pumping
- Best practice recommendations for when and how to pump
  - When to start pumping
  - How many minutes
    - 15-20 mins
    - Why this recommendation
    - What happens when parents need to go longer than this
  - How many times/day for different scenarios
    - Case Study
  - Power pumping
  - How soon before or after breastfeeding to pump?
- Breast care while pumping
  - Review ABM protocol on mastitis
  - Hand expression and hands on pumping

## Section 2 - How Pumps Work (1 hour)

### Section 2 Abstract

Lactation Professionals should be the go-to in implementation of the breast pumps. In order to be that, we need to understand how these devices work. In this section, we'll cover the different types of pumps, to include their technical descriptions and lay descriptions. We'll also cover common and specialized functions.

### Types of pumps (technical) (15min)

- Manual
- Silicone milk catcher
- Single User
- Commercial
- Multi User
- Hospital Grade

### Types of pumps (in these streets) (15min)

- Portable
- Wearable
- Workhorse
- Primary Pump
- Secondary Pump
- Eggs
- OG

### Common functions (30min)

- On
- Off

- Vacuum
- Cycle
- Letdown
- Expression
- Hand operated
- Battery operated
- Electric
- Battery pack

#### Specialized functions

- Buttons
- Touch screens
- Apps

#### Common Parts (30min)

- Pump/Hub
- Flange
- Collection Bottle
- Tube
- Connectors
- Backflow Protector
- Valve
- Membrane

#### Specialized Parts

- Cups
- Specialty Duckbills

#### Flanges

- Standard
- Aftermarket
- Silicone

## Tools

- Hands free Bras
- Inserts
- Cushions
- Lube
- Butter
- Lanolin
- Silverettes
- Massagers

## References

*Ameda Mya Joy Double Electric Breastpump: Instructions For Use.* (n.d.). Ameda.

[https://www.ameda.com/media/Mya-Joy-IFU\\_1200176-CFD\\_English.pdf](https://www.ameda.com/media/Mya-Joy-IFU_1200176-CFD_English.pdf)

*Breast milk | Transportation Security Administration.* (n.d.).

<https://www.tsa.gov/travel/security-screening/whatcanibring/items/breast-milk>

Cacho, N., Harrison, N., Parker, L. A., Padgett, K. A., Lemas, D. J., Marcial, G., Li, N., Carr, L. E., Neu, J., & Lorca, G. L. (2017). Personalization of the Microbiota of Donor Human Milk with Mother's Own Milk. *Frontiers in Microbiology*, 8.

<https://doi.org/10.3389/fmicb.2017.01470>

Center for Devices and Radiological Health. (2018). Types of breast pumps. *U.S. Food And Drug Administration*. <https://www.fda.gov/medical-devices/breast-pumps/types-breast-pumps#:~:text=Breast%20pumps%20extract%20milk%20from,combination%20is%20called%20a%20cycle>.

Chavez, S. C. (2019, March 9). Mother Invents a Gentler Breast Pump : Nursing: A lightweight device with a silicone cup designed to be easier on nursing women has turned into a successful business venture. - Los Angeles Times. *Los Angeles Times*. <https://www.latimes.com/archives/la-xpm-1990-05-29-fi-307-story.html>

Courage, K. H. (2022, September 12). The sucky history of the breast pump. *Smithsonian Magazine*. <https://www.smithsonianmag.com/innovation/sucky-history-of-the-breast-pump-180980653/>

*History*. (n.d.). <https://www.ameda.com/history>

*How to keep your breast pump clean*. (2022, July 5). Centers for Disease Control and Prevention. <https://www.cdc.gov/hygiene/childcare/breast-pump.html>

Hoyt-Austin, A. E., Cheng, J. H., Moua, H., Tancredi, D. J., Chantry, C. J., & Kair, L. R. (2023). Providing Low-Income Women With a Manual Pump: A Pilot Study. *Hospital Pediatrics*, 13(2), 115–124.

Ilyin, V. I., Alekseev, N. P., Troschkin, M. M., & Uleziko, V. A. (2019). Comparative Assessment of Excretion of Milk from Two Breast Pumps with Different Vacuum Strength and Duration. *Breastfeeding Medicine*, 14(3), 177–184. <https://doi.org/10.1089/bfm.2018.0186>

*Instructions For Use: Spectra S1 Plus / S2 Plus*. (n.d.). Spectra Baby USA. <https://www.spectrababyusa.com/wp-content/uploads/2021/01/S1-S2-Manual.pdf>

*International Warranty*. (2022, December). Medela. <https://www.medela.com/dam/medela-com/E-warranty.pdf/international-warranty-vi.pdf?uuid=jcr:95e15eef-8545-4afa-9132-4ee8e6783c7d>

Maula, S. N. M. (2017, September 29). *THE EFFECT OF ELECTRIC BREAST PUMP IN INCREASING BREASTMILK PRODUCTION*. <https://publications.inschool.id/index.php/icash/article/view/888>

McGuire, E. (2021). Exclusive expression: A woman who achieved an abundant milk supply. *Informit*, 29(2), 7–13. <https://search.informit.org/doi/10.3316/informit.920953255568584>

Mitchell, K. B., Johnson, H. M., Rodríguez, J. M., Eglash, A., Scherzinger, C., Zakarija-Grkovic, I., Cash, K. W., Berens, P., Miller, B., Stehel, E., Noble, L., Bartick, M. C., Calhoun,

S., Kair, L., Lappin, S., Larson, I., LeFort, Y., Marshall, N., Mitchell, K. B., . . . Zimmerman, D. (2022). Academy of Breastfeeding Medicine Clinical Protocol #36: The Mastitis Spectrum, Revised 2022. *Breastfeeding Medicine*, 17(5), 360–376.

<https://doi.org/10.1089/bfm.2022.29207.kbm>

Obladen, M. (2012). Guttus, tiralatte and t eterelle: a history of breast pumps. *Journal of Perinatal Medicine*, 40(6). <https://doi.org/10.1515/jpm-2012-0120>

Ryan, R. A., Hepworth, A. D., Lyndon, A., & Bihuniak, J. D. (2023). Use of Galactagogues to Increase Milk Production Among Breastfeeding Mothers in the United States: A Descriptive Study. *Journal of the Academy of Nutrition and Dietetics*.

<https://doi.org/10.1016/j.jand.2023.05.019>

*Spectra 9 Plus: User Manual*. (n.d.). Spectra Baby USA.

<https://www.spectrababyusa.com/wp-content/uploads/2021/03/Spectra-9-Plus-Manual.pdf>

*Spectra Synergy Gold Dual Powered Electric Breastpump: Instructions For Use*. (n.d.).

Spectra Baby USA. <https://www.spectrababyusa.com/wp-content/uploads/2021/01/SG-Synergy-Gold-Manual.pdf>

*Spectra Synergy Gold Portable Premium Electric Breastpump: Instructions For Use*. (n.d.).

Spectra Baby USA. <https://www.spectrababyusa.com/wp-content/uploads/2022/10/Spectra-SG-Portable-Manual-6-8-22.pdf>

Tartajubow. (n.d.). *Edward Lasker and the electric breast pump*.

<http://tartajubow.blogspot.com/2019/11/edward-lasker-and-electric-breast-pump.html>

Qi, Y., Zhang, Y., Fein, S. B., Wang, C., & Loyo-Berrios, N. (2013). Maternal and Breast Pump Factors Associated with Breast Pump Problems and Injuries. *Journal of Human Lactation*, 30(1), 62–72. <https://doi.org/10.1177/0890334413507499>

Waring, M. E., Carr, L. T. B., & Heersping, G. E. (2023). Social media use among parents and women of childbearing age in the US. *Preventing Chronic Disease*, 20.

<https://doi.org/10.5888/pcd20.220194>

Yuan, S., Li, Q., Wang, H., & Xu, X. (2023). The Utilization of Sodium Concentration in Human Milk from Pump-Dependent Mothers of Preterm Infants as a Measure of Milk Production. *Breastfeeding Medicine*. <https://doi.org/10.1089/bfm.2022.0263>



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