

# The Cold Chain and Vaccine storage

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[www.immunisation.ie](http://www.immunisation.ie)

# Objectives

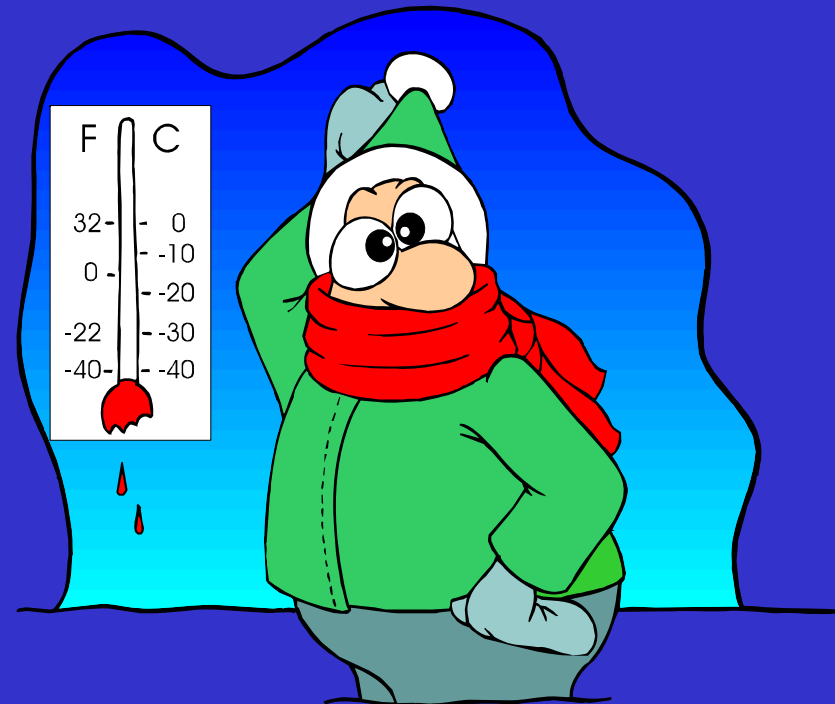
- To explain the cold chain and vaccine delivery service including use of vaccine returns service
- To understand the correct procedures for handling and storage of vaccines
- To understand the importance of monitoring the cold chain within your own practice
- To explain recommendations for breaks in cold chain



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# Why is the cold chain important?

- Exposure to extremes in temperature damages vaccines
- Necessary for compliance with vaccine licence
- Every vaccine from time of manufacture up to point of delivery to surgery has a verified temperature record
- Assurance/confidence in potent product
- Ensuring maximum benefit from immunisation



# National Cold Chain Delivery Service

- Commenced 1<sup>st</sup> January 2005
- Initial contract with Cahill May Roberts
- Currently United Drug Distributors
- Main storage site in Tallaght with satellite sites in Limerick and Ballina
- Delivering to ~1830 site annually



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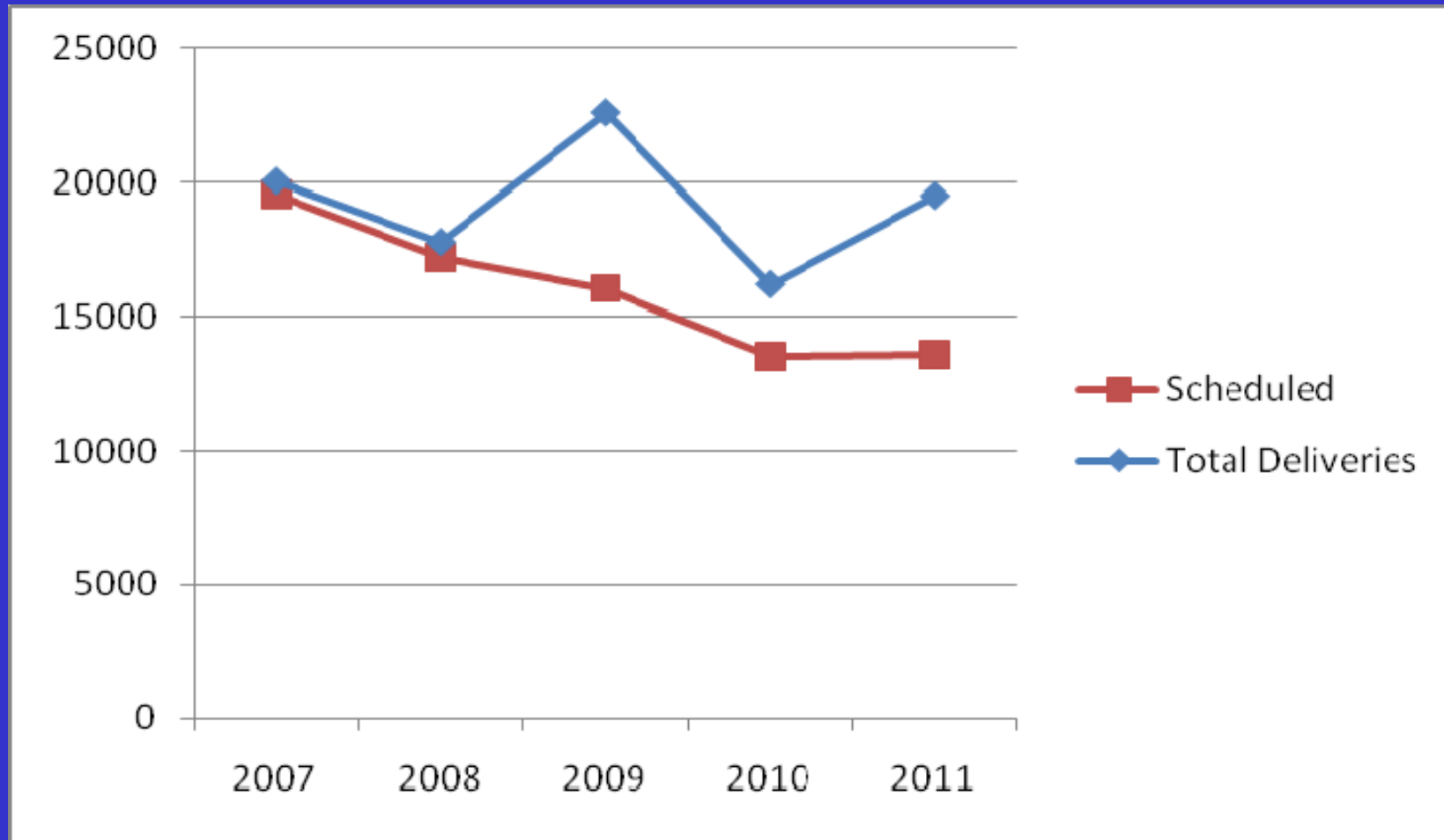
# Vaccine deliveries

- Each site entitled to 12 + 1 monthly deliveries per year
- New contract is for 12+2 extra deliveries during the flu season
- Unscheduled
- Emergency



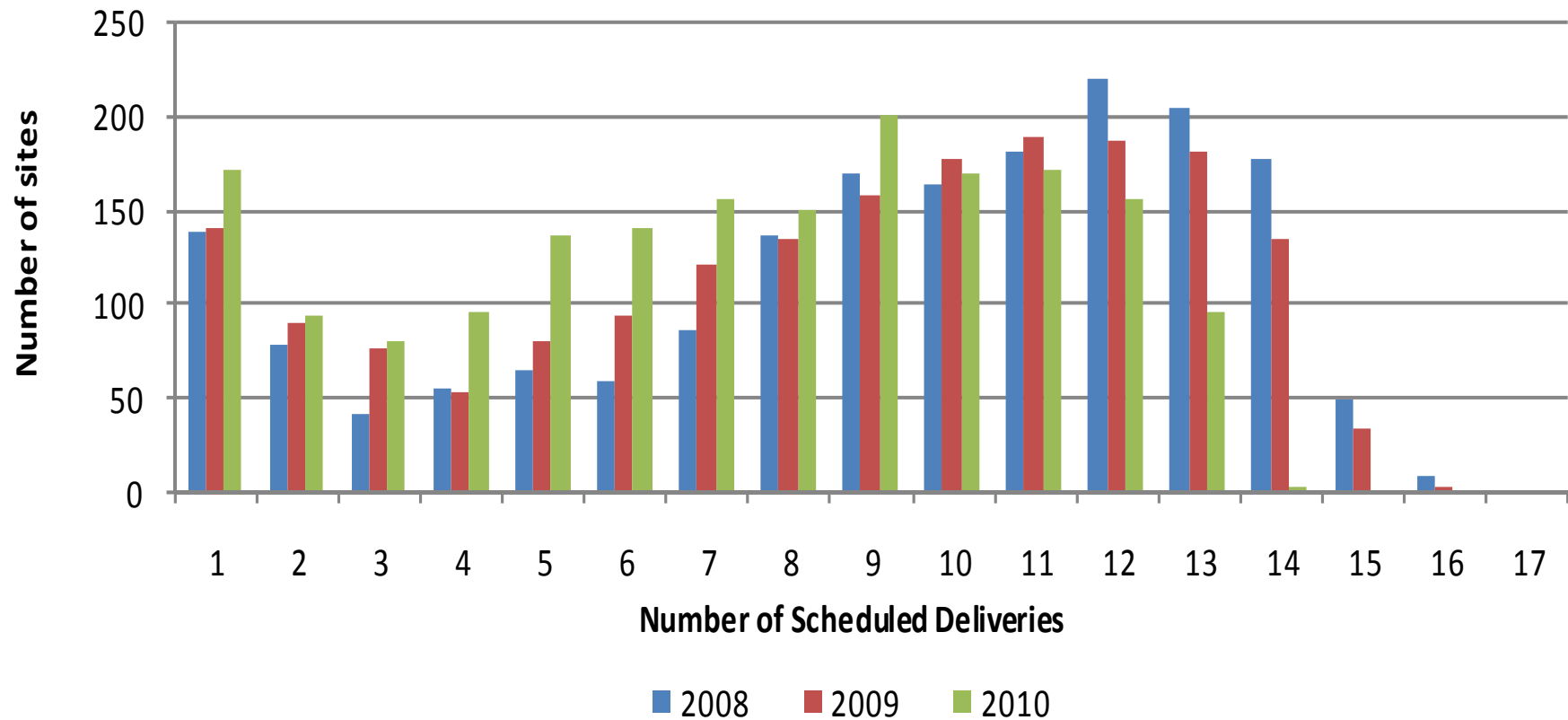
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# Number of Deliveries 2007-2011



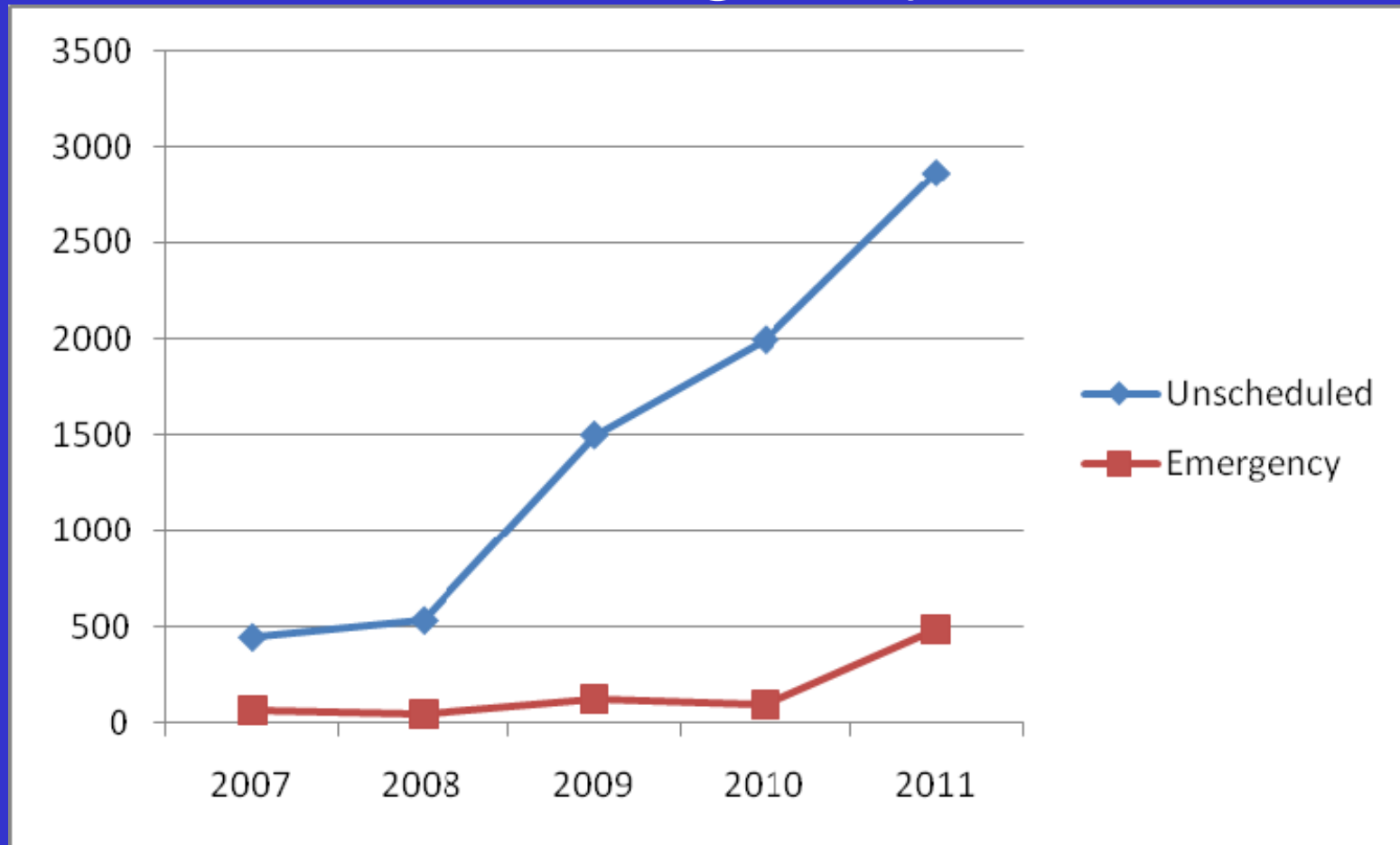
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# Scheduled Deliveries 2008 - 2010



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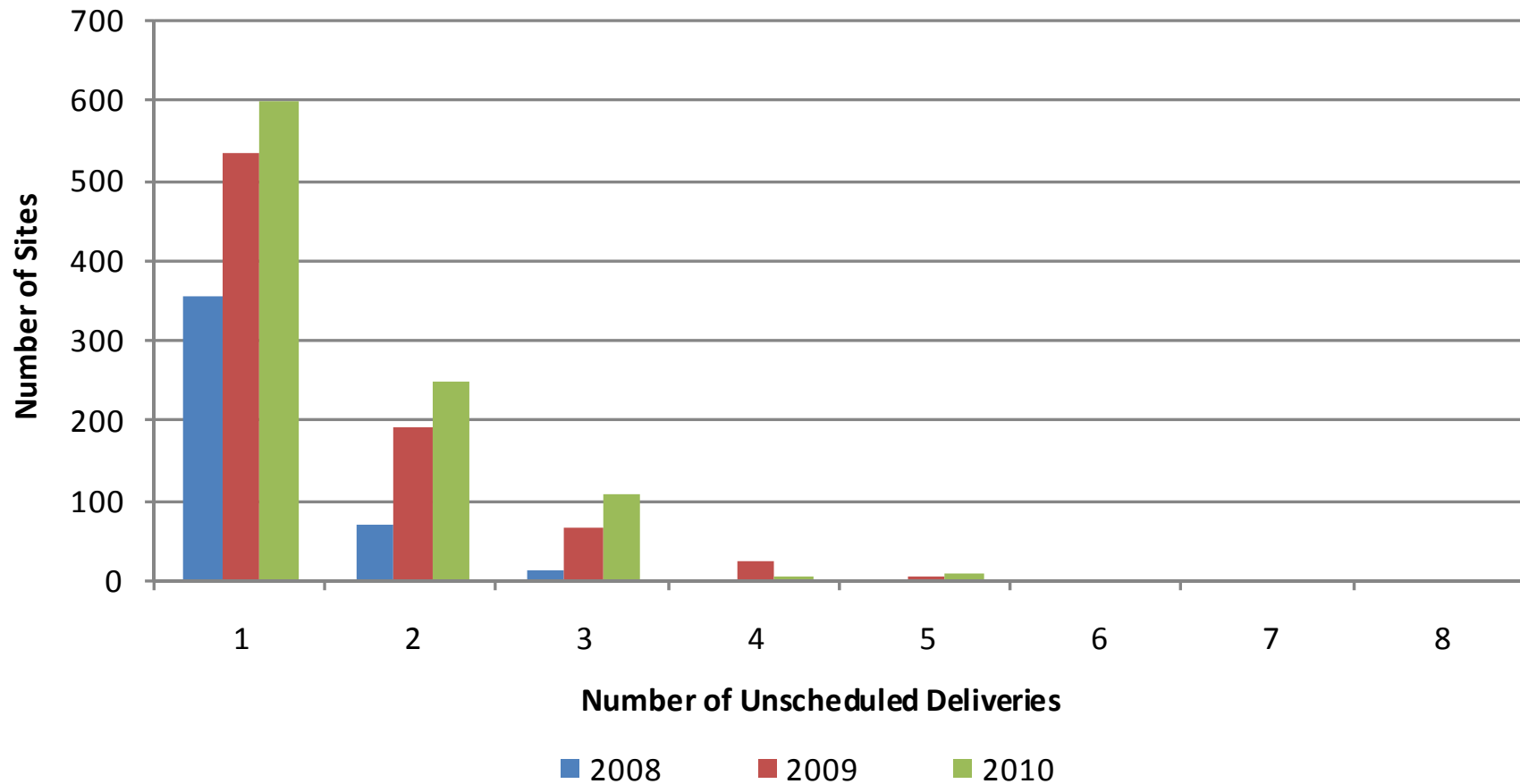
# Number of Unscheduled & Emergency



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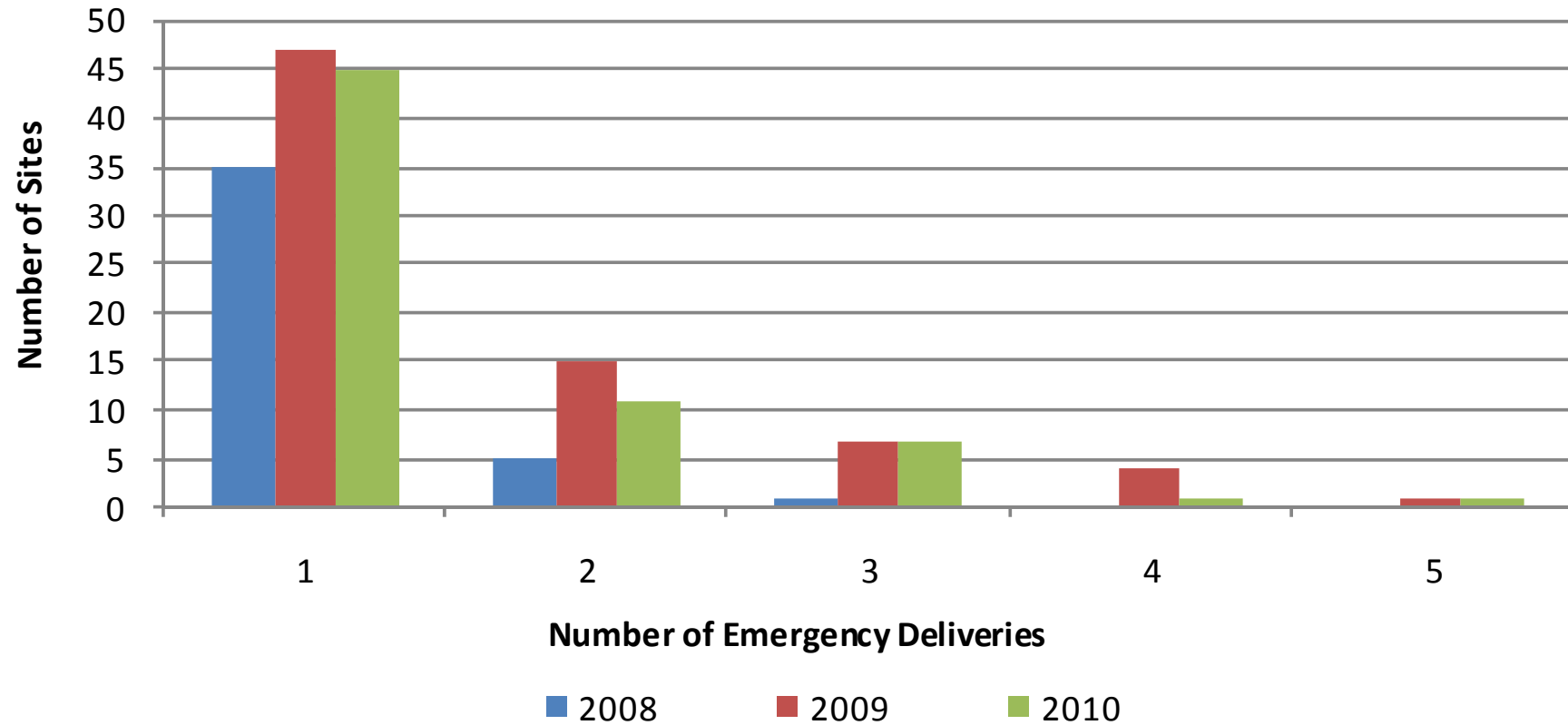


# Number of Unscheduled Deliveries 2008 - 2010



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# Number of Emergency deliveries 2008 -2010



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# Vaccines supplied

	Vaccines
Primary Childhood vaccines	6 in 1/ Men C/ PCV / MMR/ Hib/ 4 in 1
Adult vaccines	Td Influenza/ Pneumococcal polysaccharide vaccine
HSE vaccines	BCG / Tuberculin / 4 in 1 / MMR / Tdap / HPV
Restricted vaccines	Hepatitis A/ Hepatitis B/ Hepatitis A +B Td/IPV and Tdap/IPV/ MenACW <sub>135</sub> Y

Current list of available vaccines

- from United drug
- in newsletter
- on immunisation website



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# Who can order vaccines?

- GPs who hold an immunisation contract
- Community Health Doctors who run the school immunisation service, BCG clinics
- Hospitals who require vaccines
  
- Vaccines are delivered monthly directly to the GP surgery, HSE health centre or hospital pharmacies



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# How much vaccine should be ordered?

- The quantity of vaccine order can be determined by
  - Quantity used since last delivery
  - Storage volume within the refrigerator
  - Vaccines currently in the refrigerator
  - Seasonal variation e.g. influenza vaccine
  - Disease outbreaks



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# Some typical vaccine orders with costings

Qty	Vaccine
10	INFANRIX HEXA
10	PREVENAR
10	MEN C
10	MMR
5	HIB
5	DITE BOOSTER
Total	<u>€1,222.62</u>

Qty	Vaccine
30	INFANRIX HEXA
30	PREVENAR
30	MEN C
10	MMR
10	HIB
10	DITE BOOSTER
Total	<u>€3,395.90</u>

Qty	Vaccine
70	INFANRIX HEXA
70	PREVENAR
70	MEN C
40	MMR
25	HIB
30	DITE BOOSTER
20	TETRAVAC
Total	<u>€8,399.91</u>



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# Recommended procedure for ordering and accepting vaccines

- Should have a named, trained and designated person and deputy
- Fax or e-mail order to UD before closing date
- **Remove expired vaccines from fridge** and prepare for return.
- Give vaccine returns to UD driver
- Check vaccine deliveries against the order for damage or discrepancies
- Place vaccines in the vaccine refrigerator immediately
- **NEVER leave vaccine delivery at room temperature**



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# Vaccine storage

- To comply with licence
  - Store within the temperature range of 2-8<sup>0</sup>C
  - Store in original packaging
- Store vaccines on shelves, not touching the sides of the fridge
- Record fridge temperature twice daily
- Use a switchless socket
- Never unplug the fridge
- Never use out of date vaccines



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# Recommended procedure following a break in the Cold Chain

- Usually occurs due to a problem with the vaccine fridge.  
E.g.
  - Electricity power cut
  - Switch turned off
  - Fridge door left open.
- ***If this happens***
  - Make sure that the refrigerator door is closed
  - Check the temperature and find out how long the refrigerator breakdown has been
  - Contact the Chief Pharmacist, National Immunisation Office for further advice. **(087 9915452 or 01 8676108)**



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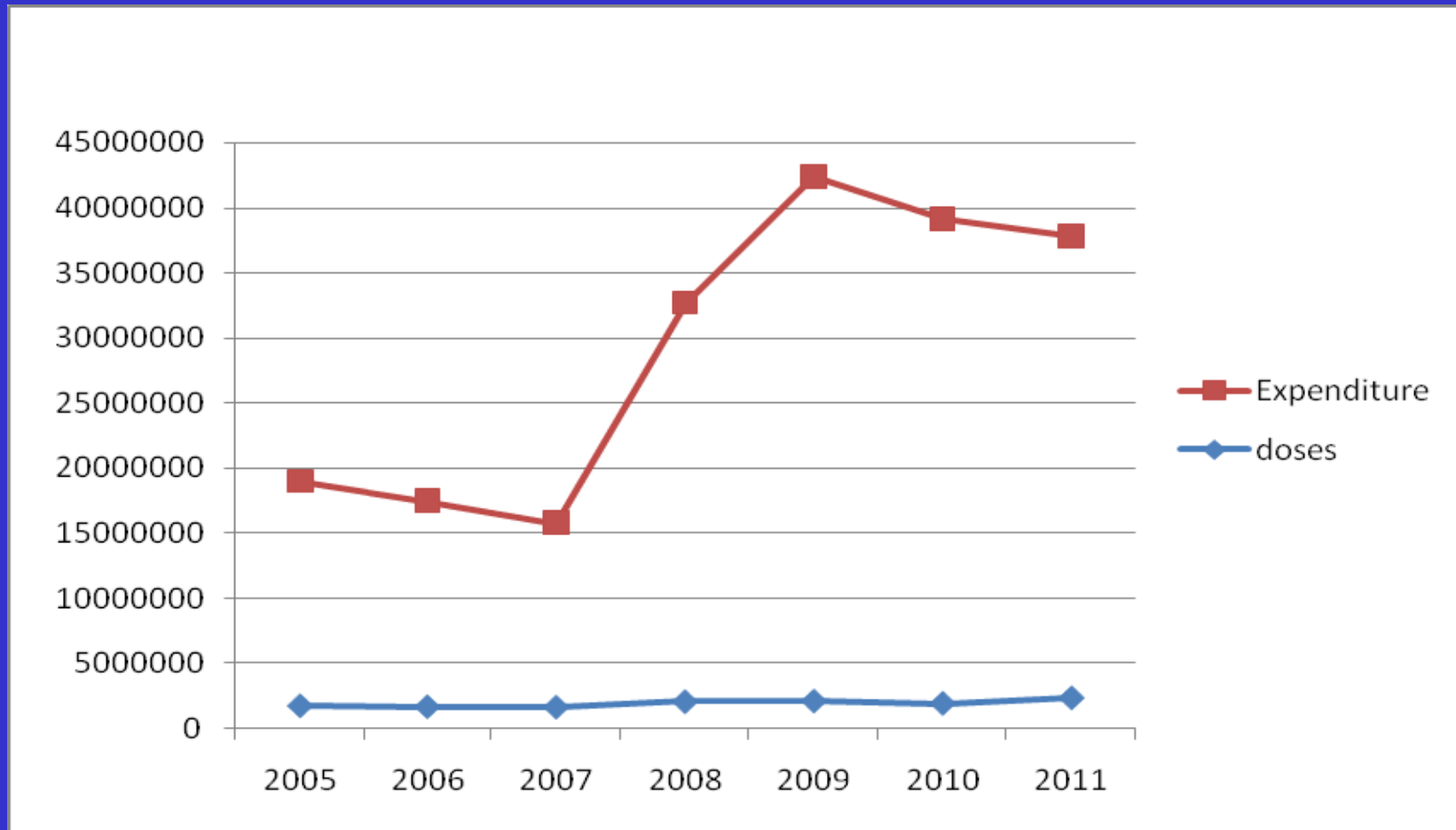
# Recommended procedure following a break in the Cold Chain (2)

- Any vaccine not stored between 2<sup>0</sup>-8<sup>0</sup>C is no longer a licensed product
- Company data show that vaccines can be used if exposed to short deviations.
- Each temperature deviation must be judged on a case by case scenario.
- Each vaccine has specific criteria and will remain stable for different lengths of time.
- Vaccines which cannot be used must be returned to the National Cold Chain Delivery Service



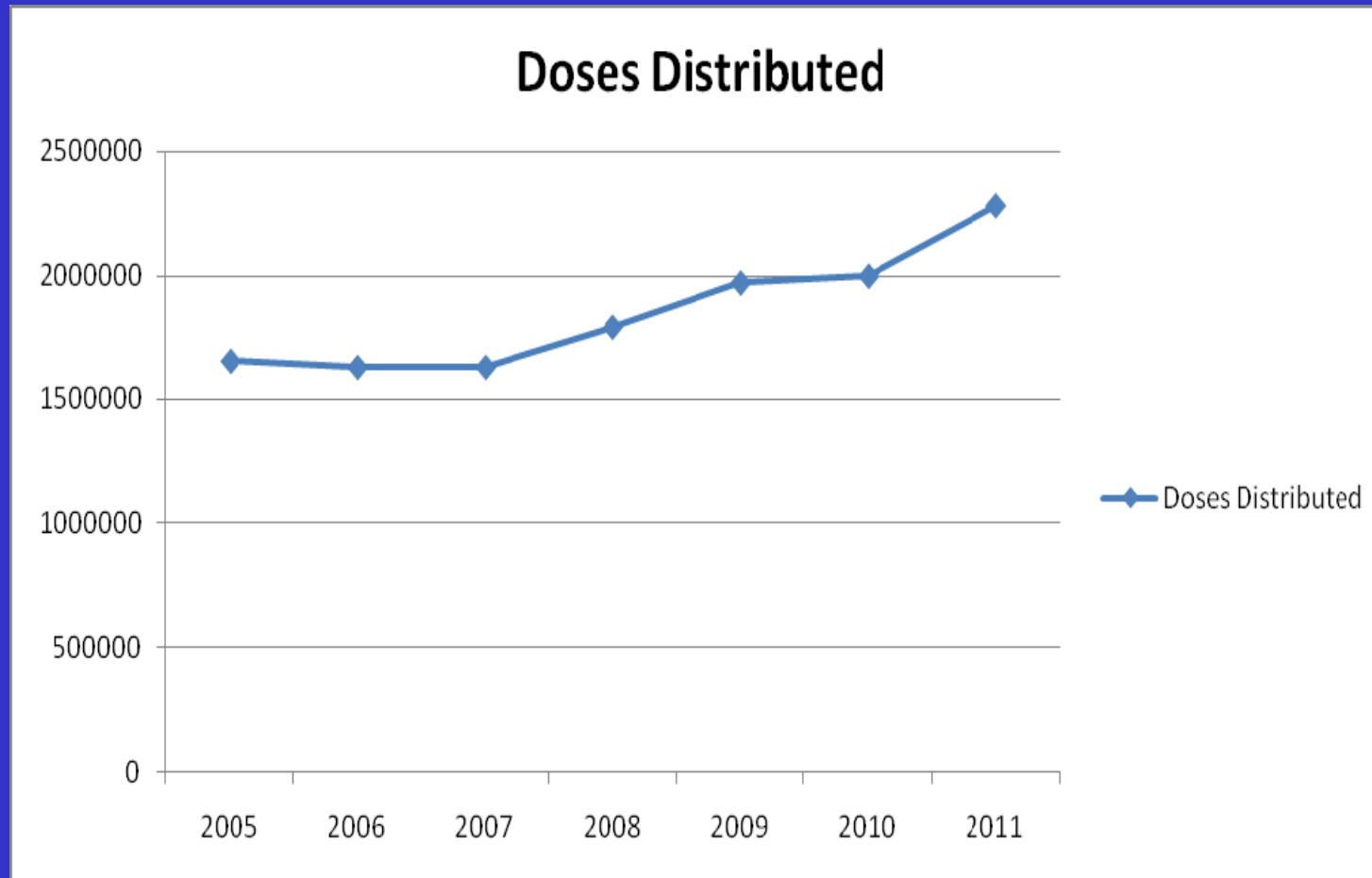
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# Vaccine Annual Costs



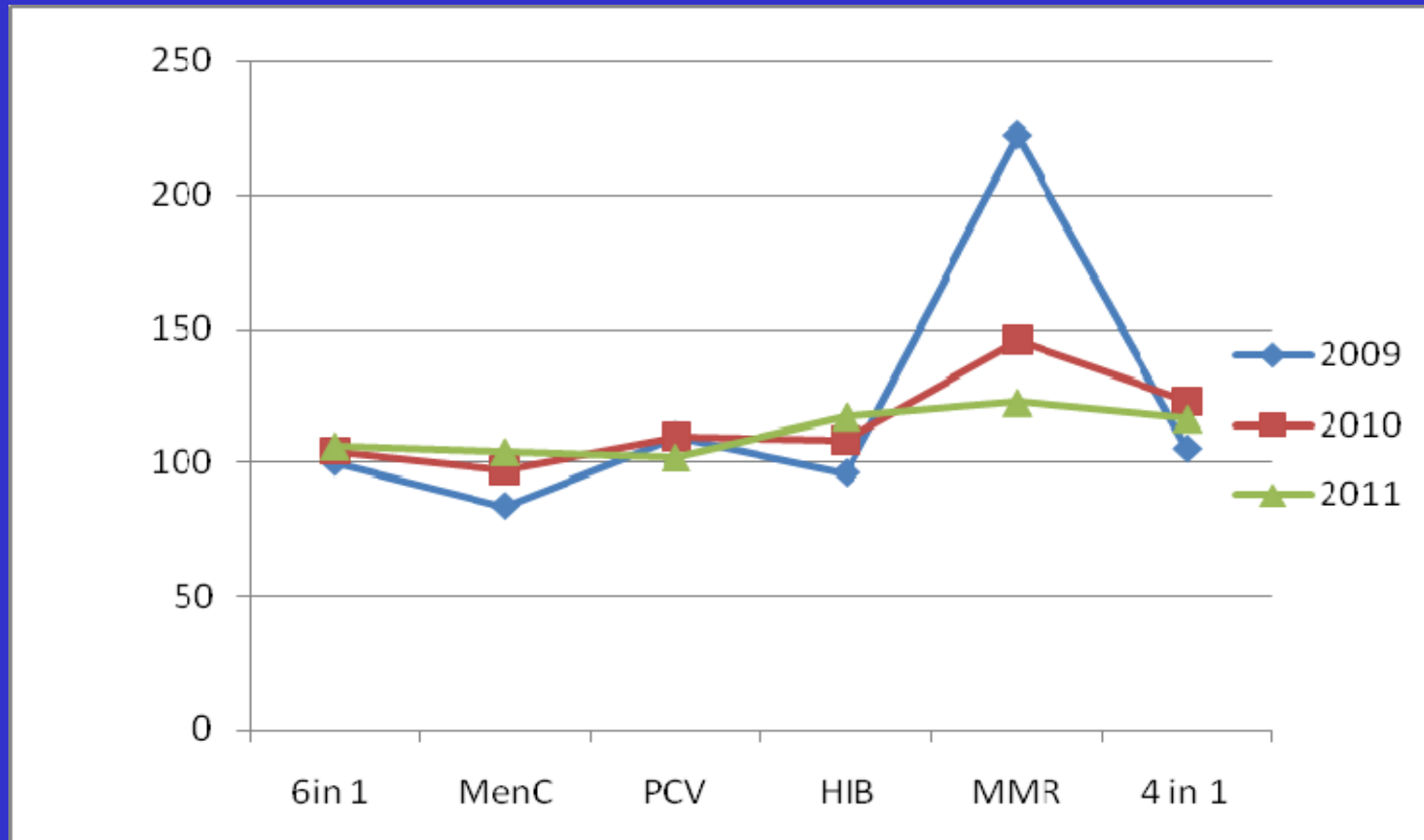
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# Number of Doses Distributed



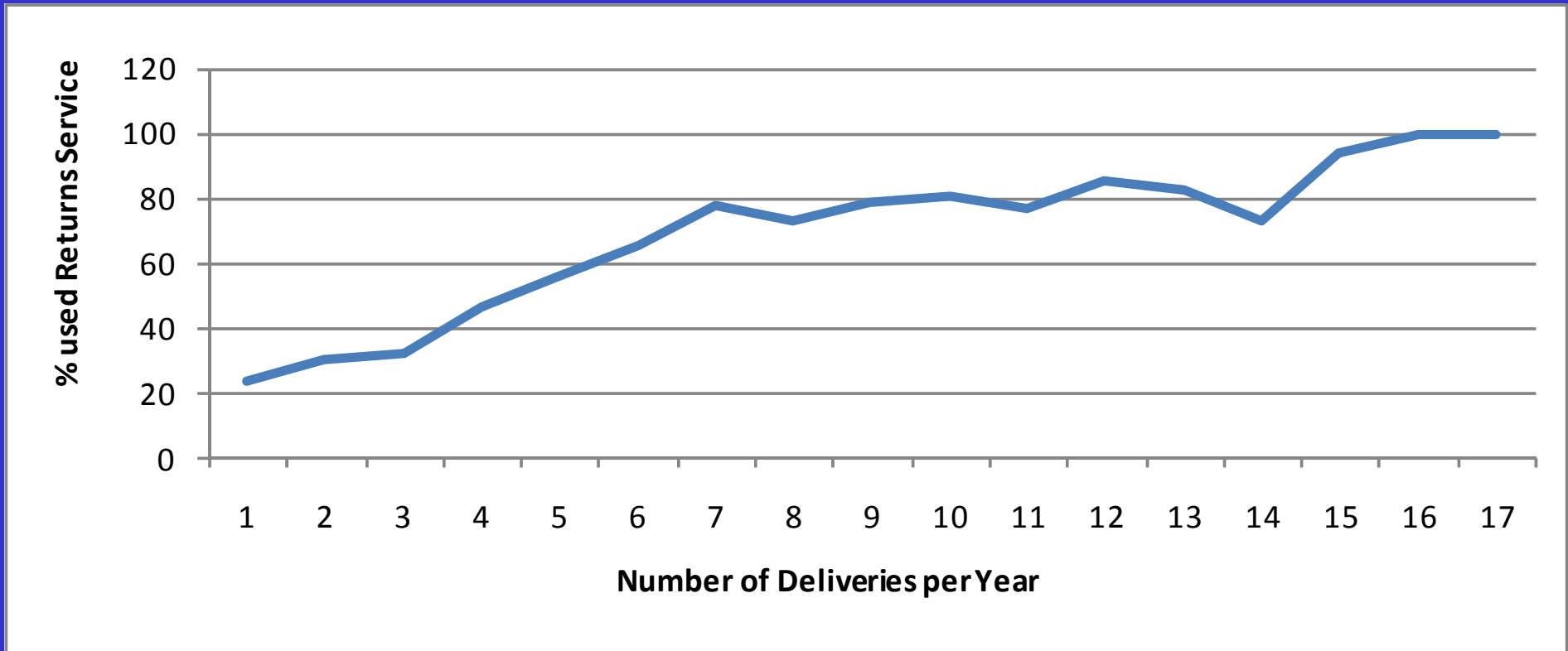
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# Number of doses distributed as % of cohort requirements in 2009



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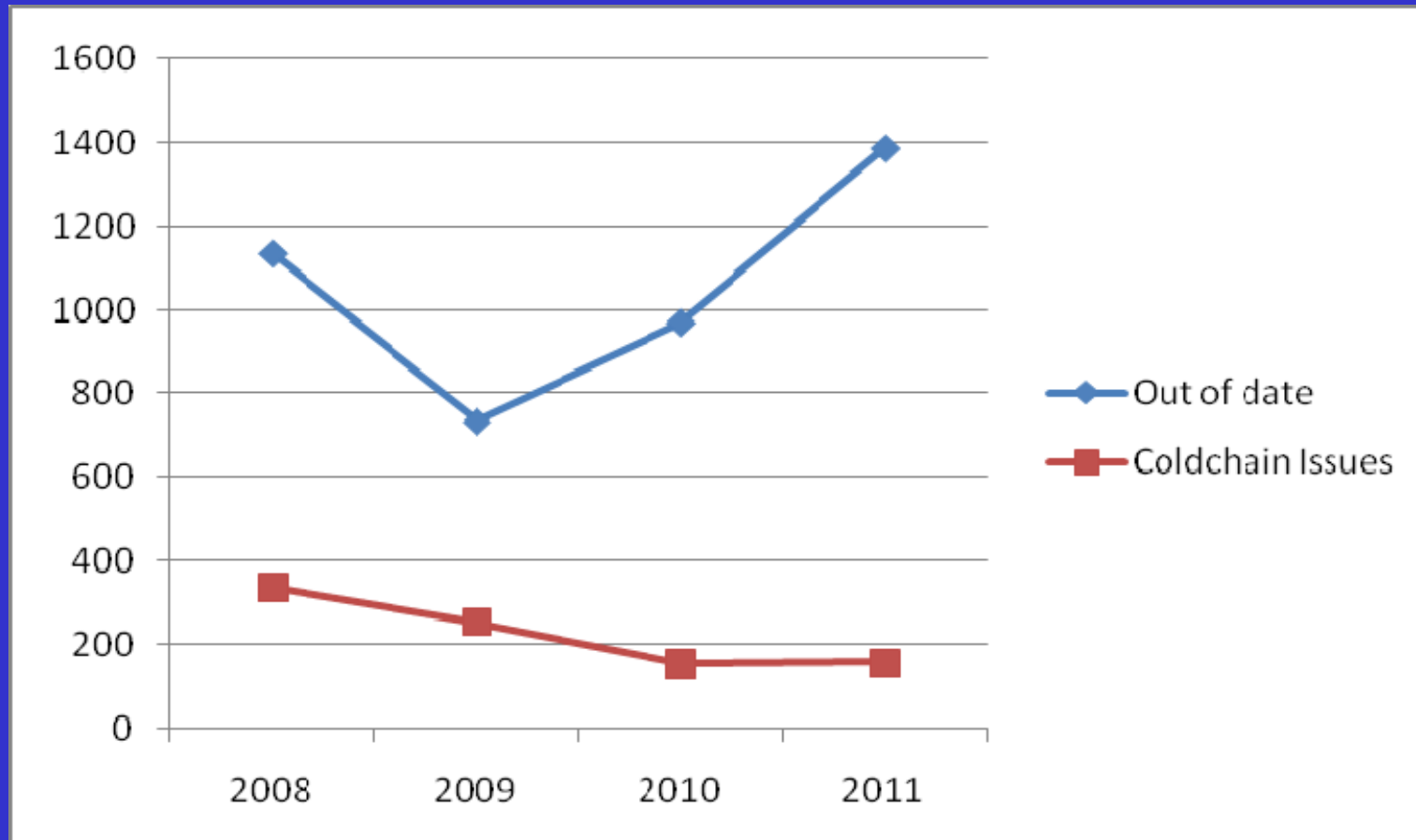
# Sites using the returns service by number of deliveries per year



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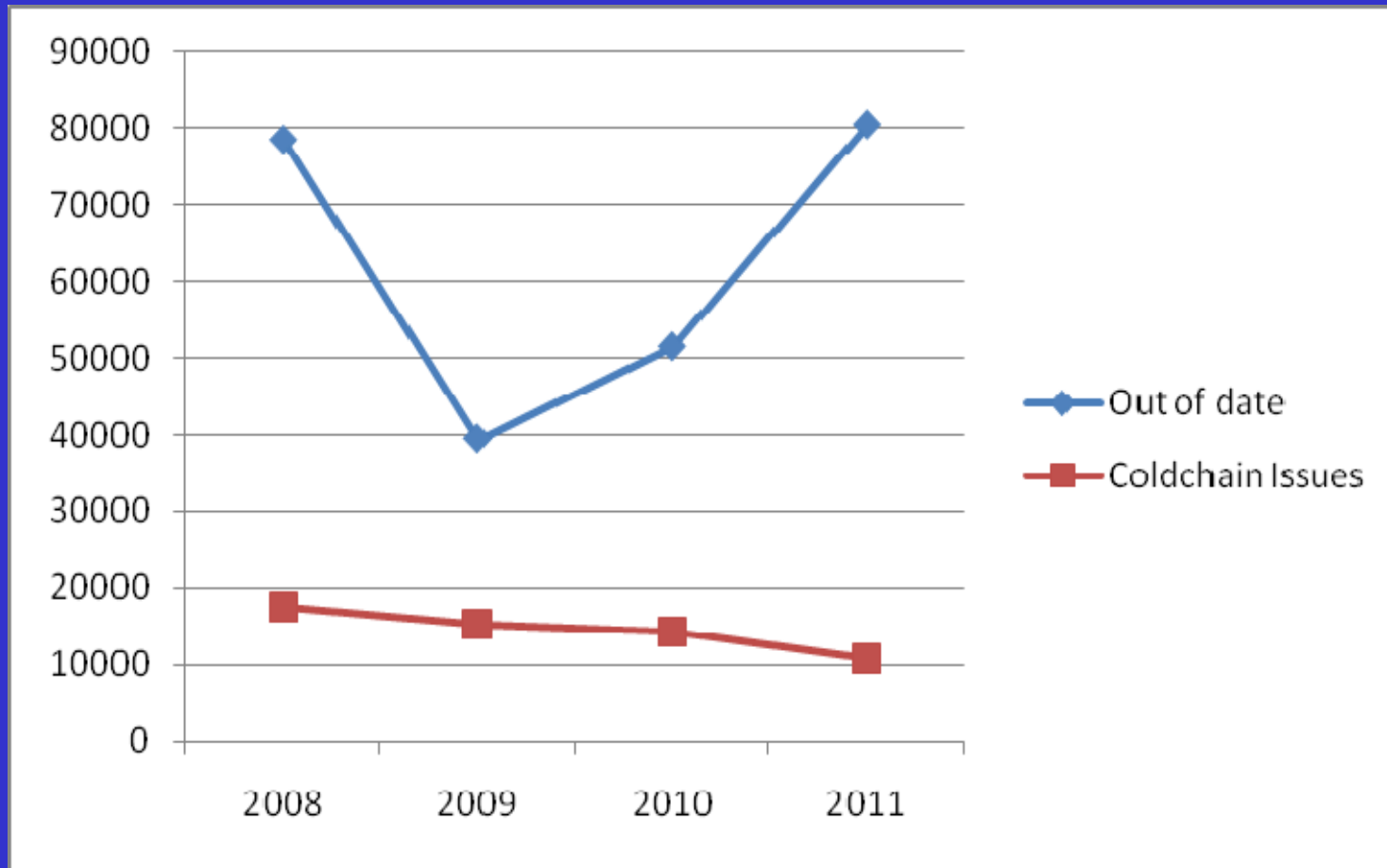


# Number of Sites using returns service 2008 -2011



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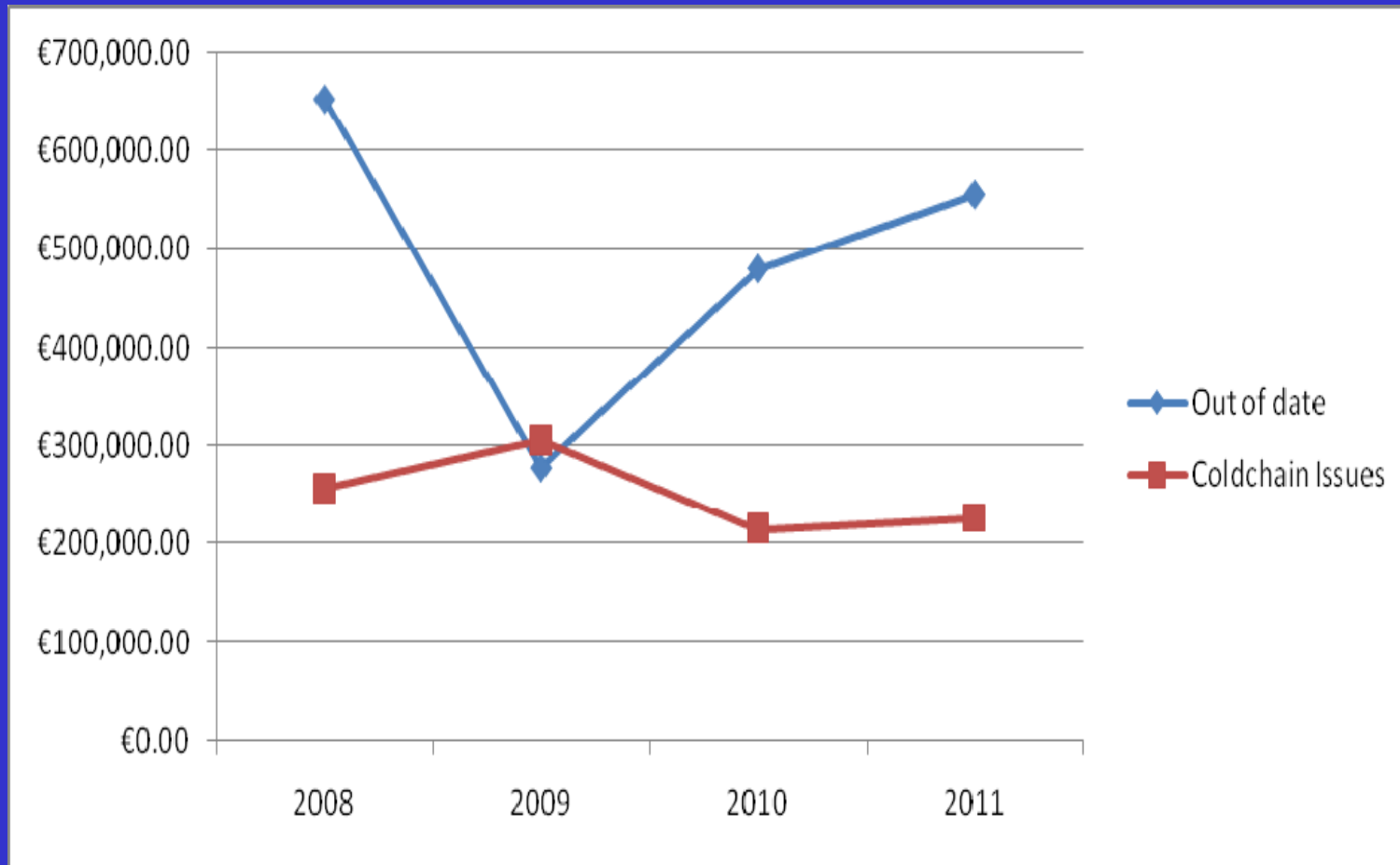
# Number of Doses Returned 2008 - 2011



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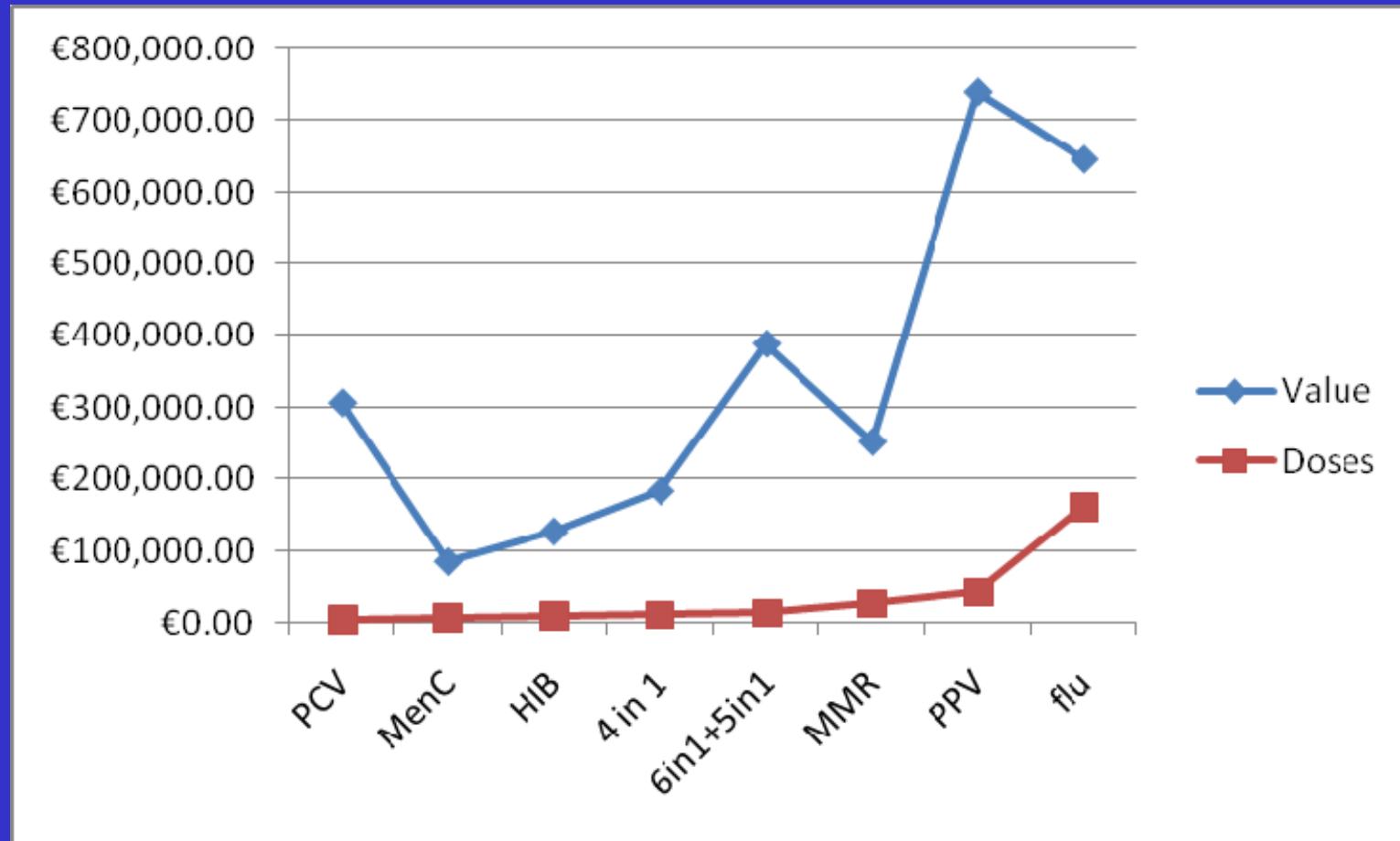


# Value of Returned Doses



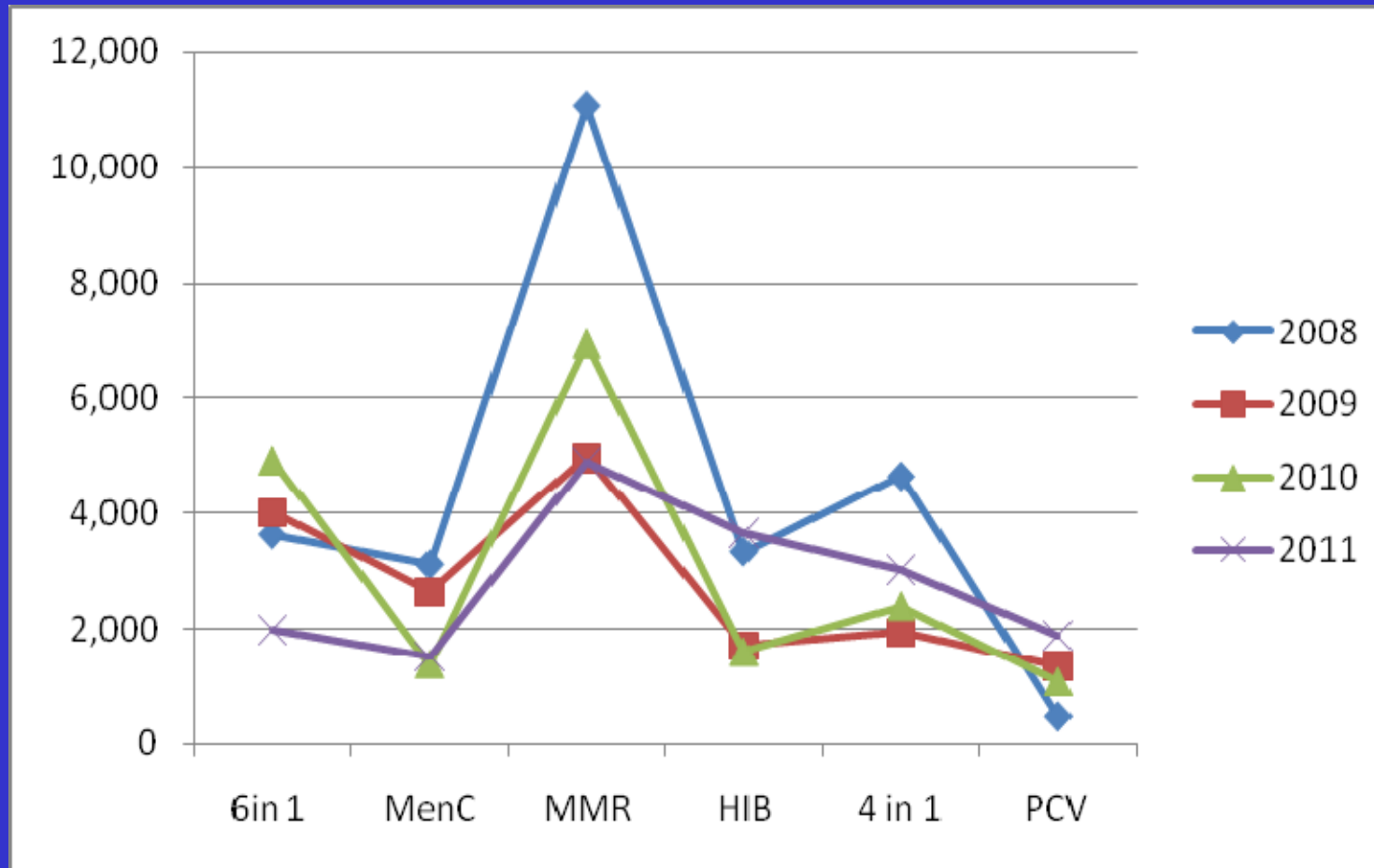
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# Total doses and costs of vaccine returns from January 2008 to December 2011



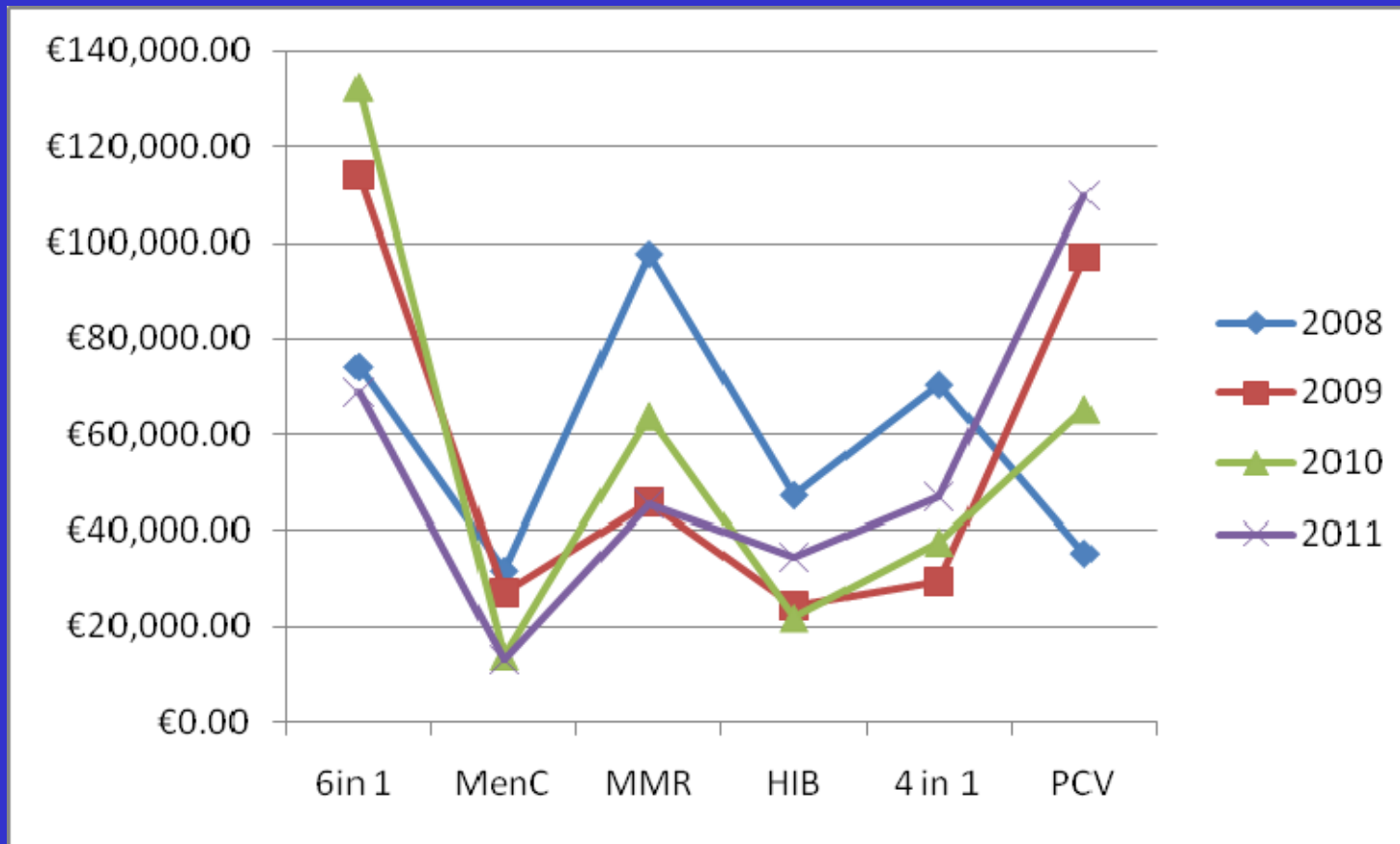
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# Number of Doses Returned annually 2008 - 2011



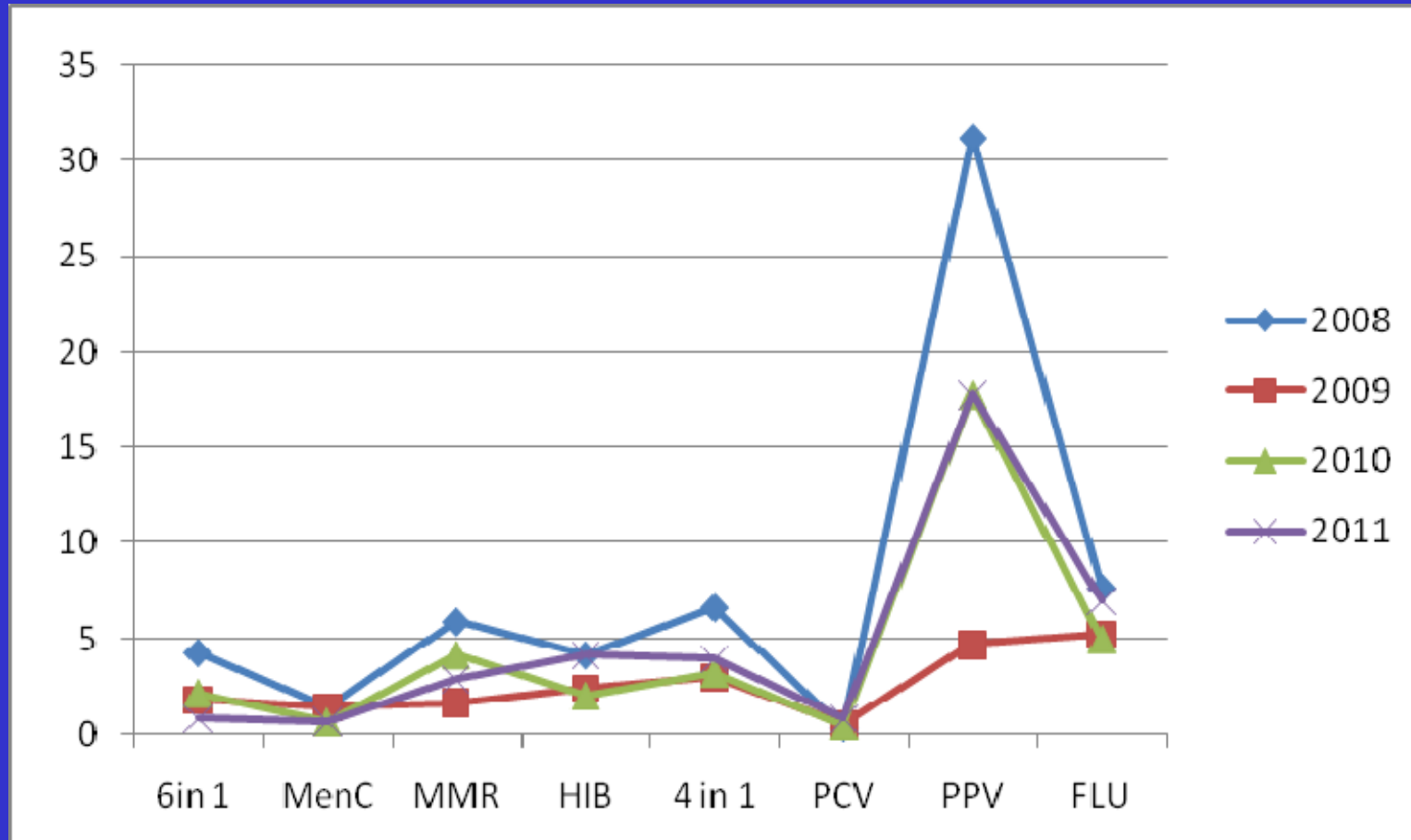
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# Value of Vaccines returned 2008 -2011



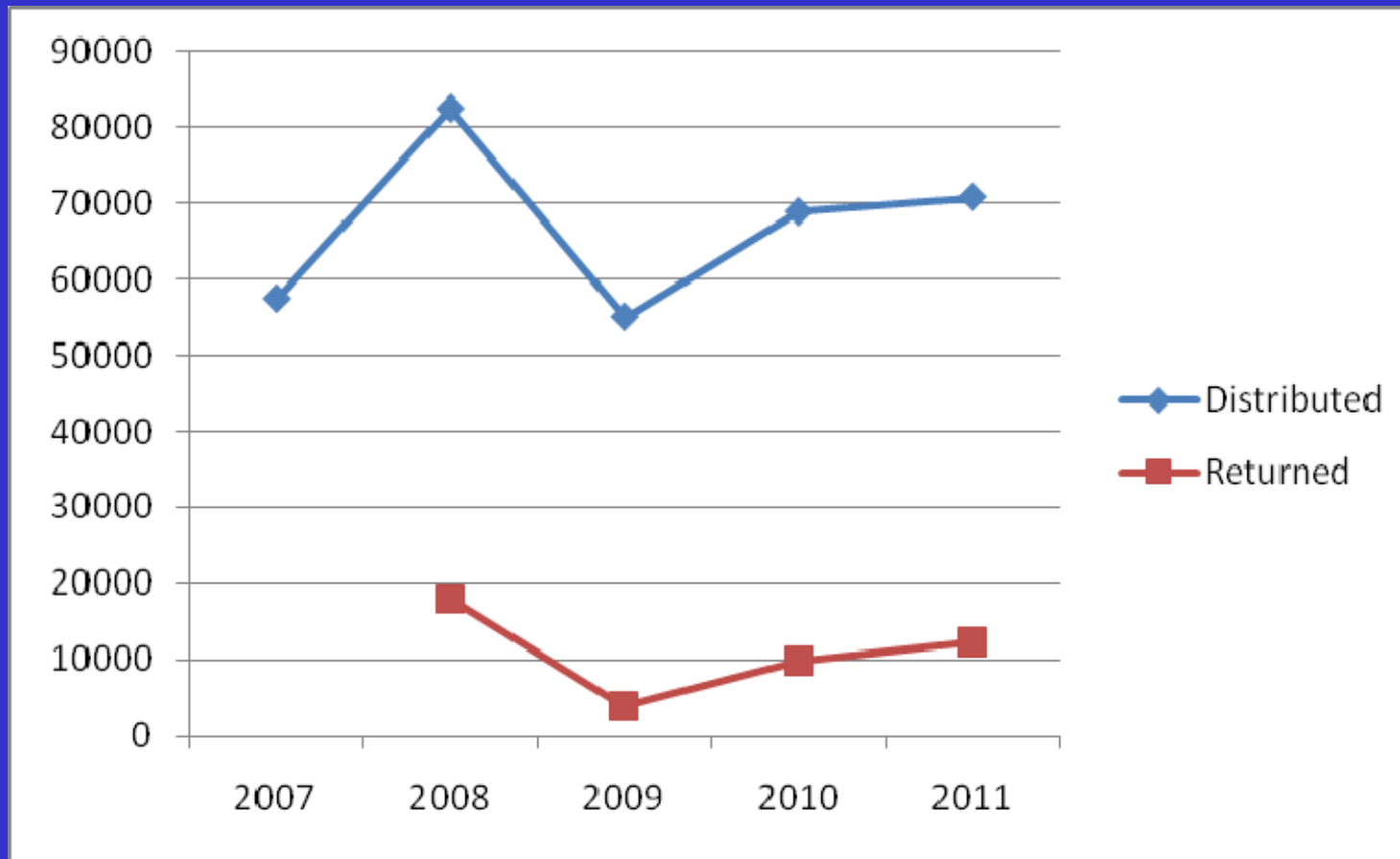
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# Percentage of Vaccines Returned compared to Distributed



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# Pneumovax



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# Recent Immunisation News

- Pneumovax (PPV23) is a once only vaccination for those over 65yrs of age. It is only once repeated after 5 years for those who received it under 65 or those whose antibody levels decline rapidly, e.g asplenia, splenic dysfunction, immunosuppression, renal transplant or chronic renal disease.
- Men ACW<sub>135</sub>Y (Menveo)
- Boostrix



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# Batch Numbers

- The valid batch number is the number on the box and is the only number to record.
- Please use peel off sticker where available.
- Combination vaccines or vaccines which require reconstitution will have a different batch numbers on each constituent, the number on the box refers to the reconstituted vaccine.
- Only the appropriate batch number can be accepted on the child's record, any other batch number will register as invalid.



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# Conclusions

- Vaccines are expensive
- Good housekeeping essential for vaccine management



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# Useful resources

- Australian Government Department of Health and Ageing National Vaccine Storage Guidelines 2005, Strive for 5  
<http://www.health.gov.au/internet/immunise/publishing.nsf/Content/provider-store>
- Department of Health UK. November 2006. Immunisation against infectious disease.  
[http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/Greenbook/DH\\_4097254](http://www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/Greenbook/DH_4097254)
- Irish Pharmaceutical Healthcare Association Medical Compendium.  
<http://www.medicines.ie>.
- Irish Medicines Board. <http://www.imb.ie>.
- National Immunisation Office Ireland. Health Service Executive.  
<http://www.immunisation.ie>.
- Public Health Agency Canada. National Vaccine Storage and Handling Guidelines for immunisation providers 2007. <http://www.phac-aspc.gc.ca/publicat/2007/nvshgpl-ldemv/index-eng.php>.
- Royal College of Physicians of Ireland. Immunisation Guidelines for Ireland. Available at [www.rcpi.ie](http://www.rcpi.ie) or [www.immunisation.ie](http://www.immunisation.ie) or [www.hpsc.ie](http://www.hpsc.ie)



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