

Regimen Monograph

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A - Regimen Name

FCM+OBIN Regimen

Fludarabine-Cyclophosphamide-mitoXANTRONE-oBINutuzumab

Disease Site Hematologic - Lymphoma - Non-Hodgkin's Low Grade

Intent Palliative

Regimen Category **Evidence-informed :**

Regimen is considered appropriate as part of the standard care of patients; meaningfully improves outcomes (survival, quality of life), tolerability or costs compared to alternatives (recommended by the Disease Site Team and national consensus body e.g. pan-Canadian Oncology Drug Review, pCODR). Recommendation is based on an appropriately conducted phase III clinical trial relevant to the Canadian context OR (where phase III trials are not feasible) an appropriately sized phase II trial. Regimens where one or more drugs are not approved by Health Canada for any indication will be identified under Rationale and Use.

This **Regimen Abstract** is an **abbreviated** version of a Regimen Monograph and contains only top level information on usage, dosing, schedule, cycle length and special notes (if available). Information in regimen abstracts is accurate to the extent of the ST-QBP regimen master listings, and has not undergone the full review process of a regimen monograph. Full regimen monographs will be published for each ST-QBP regimen as they are developed.

Rationale and Uses For the treatment of patients with follicular lymphoma[†] whose disease is refractory* to a rituximab-containing regimen and has a good performance status

[†] indolent lymphoma histologies other than follicular lymphoma (excluding CLL and mantle cell lymphoma) may be eligible for obinutuzumab funding (refer to [NDFP form](#))

* no response to OR progression during or within 6 months after rituximab or a

 rituximab-containing regimen

Supplementary Public Funding [oBINutuzumab](#)
 New Drug Funding Program (Obinutuzumab - In Combination with Chemotherapy for Refractory Follicular Lymphoma)

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B - Drug Regimen

FCM+OBIN (induction)

Cycle 1:

oBINutuzumab	1000 mg	IV	Days 1, 8 and 15
mitoXANTRONE	6 mg /m ²	IV	Day 1
fludarabine	25 mg /m ²	IV	Days 1 to 3
cyclophosphamide	250 mg /m ²	IV	Days 1 to 3

Cycles 2 to 6:

oBINutuzumab	1000 mg	IV	Day 1
mitoXANTRONE	6 mg /m ²	IV	Day 1
fludarabine	25 mg /m ²	IV	Days 1 to 3
cyclophosphamide	250 mg /m ²	IV	Days 1 to 3

For obinutuzumab maintenance use, report as regimen OBIN(MNT) after FCM+OBIN induction.

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C - Cycle Frequency

Induction: REPEAT EVERY 28 DAYS for up to 6 cycles unless disease progression or unacceptable toxicity (see [NDFP form](#))

For patients who responded to induction therapy, refer to maintenance obinutuzumab regimen - OBIN(MNT).

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D - Premedication and Supportive Measures

Antiemetic Regimen: Moderate
Minimal (Days 8 and 15 of Cycle 1)

Other Supportive Care:

Also refer to [CCO Antiemetic Recommendations](#).

Obinutuzumab:

Hepatitis B screening should be performed prior to treatment for all patients.

Patients at risk for tumour lysis syndrome should receive adequate hydration and uricostatics or alternative starting 12 to 24 hours prior to infusion.

Consider withholding antihypertensives (if applicable) 12 hours prior to infusion, during infusion and for the first hour after drug administration, and withholding concomitant medications that increase bleeding risk, especially in the first cycle.

Patients with neutropenia should receive antimicrobial prophylaxis; consider use of G-CSF, antiviral and antifungal prophylaxis.

Premedication recommendations:

Treatment cycle, day	Patients	Premedication
Cycle 1, Day 1	All	IV corticosteroid*/^ completed at least 1 hr prior to infusion & PO analgesic/antipyretic** & antihistamine*** at least 30 min prior to infusion

Subsequent infusions	Patients with no prior IR during previous infusion	PO analgesic/antipyretic** at least 30 min prior to infusion
	Patients with grade 1 or 2 IR with previous infusion	PO analgesic/antipyretic** & antihistamine*** at least 30 min prior to infusion
	Patients with grade 3 IR with previous infusion OR patients with lymphocyte counts > 25 x 10 ⁹ /L prior to next treatment	IV corticosteroid*/^ completed at least 1 hr prior to infusion & PO analgesic/antipyretic** & antihistamine*** at least 30 min prior to infusion

*e.g. 100 mg prednisone or 20 mg dexamethasone. Hydrocortisone should not be used as it has not been effective in reducing IR rates.

^ If a corticosteroid-containing chemotherapy regimen is given on the same day as obinutuzumab, the corticosteroid can be given as PO if given at least 1 hour prior to obinutuzumab, in which case additional IV corticosteroid as premedication is not required.

**e.g. 1000 mg acetaminophen

***e.g. 50 mg diphenhydramine

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J - Administrative Information

Approximate Patient Visit	4.5 hours
Pharmacy Workload (average time per visit)	36.426 minutes
Nursing Workload (average time per visit)	60.000 minutes

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K - References

Cheson BD, Chua N, Mayer J, et al. Overall survival benefit in patients with rituximab-refractory indolent non-Hodgkin lymphoma who received obinutuzumab plus bendamustine induction and obinutuzumab maintenance in the GADOLIN study. *J Clin Oncol*. 2018 Aug 1;36(22):2259-66.

Forstpointner R, Dreyling M, Repp R, et al; German Low-Grade Lymphoma Study Group. The addition of rituximab to a combination of fludarabine, cyclophosphamide, mitoxantrone (FCM) significantly increases the response rate and prolongs survival as compared with FCM alone in patients with relapsed and refractory follicular and mantle cell lymphomas: results of a prospective randomized study of the German Low-Grade Lymphoma Study Group. *Blood*. 2004 Nov 15;104(10):3064-71.

Hendry L, Bowen A, Matutes E, et al. Fludarabine, cyclophosphamide and mitoxantrone in relapsed or refractory chronic lymphocytic leukemia and low grade non-Hodgkin's lymphoma. *Leuk Lymphoma*. 2004 May;45(5):945-50.

Cheson BD, Trneny M, Bouabdallah K, et al. Obinutuzumab plus bendamustine followed by obinutuzumab maintenance prolongs overall survival compared with bendamustine alone in patients with rituximab-refractory indolent non-hodgkin lymphoma: updated results of the GADOLIN study. *Blood* 2016;128:615 (published online Dec 1, 2016; update results - abstract only).

Radford J, Davies A, Cartron G, et al. Obinutuzumab (GA101) plus CHOP or FC in relapsed/refractory follicular lymphoma: results of the GAUDI study (BO21000). *Blood*. 2013 Aug 15;122(7):1137-43.

Santini G, Nati S, Spriano M, Gallamini A, Pierluigi D, Congiu AM, Truini M, Rubagotti A, Chisesi T, Vimercati R, Rossi E, Sertoli MR, Mattei D, Marino G, Gobbi M. Fludarabine in combination with cyclophosphamide or with cyclophosphamide plus mitoxantrone for relapsed or refractory low-grade non-Hodgkin's lymphoma. *Haematologica*. 2001 Mar;86(3):282-6.

June 2021 removed fludarabine NDFP funding info

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M - Disclaimer

Regimen Abstracts

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Regimen Monographs

Refer to the [New Drug Funding Program](#) or [Ontario Public Drug Programs](#) websites for the most up-to-date public funding information.

The information set out in the drug monographs, regimen monographs, appendices and symptom management information (for health professionals) contained in the Drug Formulary (the "Formulary") is intended for healthcare providers and is to be used for informational purposes only. The information is not intended to cover all possible uses, directions, precautions, drug interactions or adverse effects of a particular drug, nor should it be construed to indicate that use of a particular drug is safe, appropriate or effective for a given condition. The information in the Formulary is not intended to constitute or be a substitute for medical advice and should not be relied upon in any such regard. All uses of the Formulary are subject to clinical judgment and actual prescribing patterns may not follow the information provided in the Formulary.

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