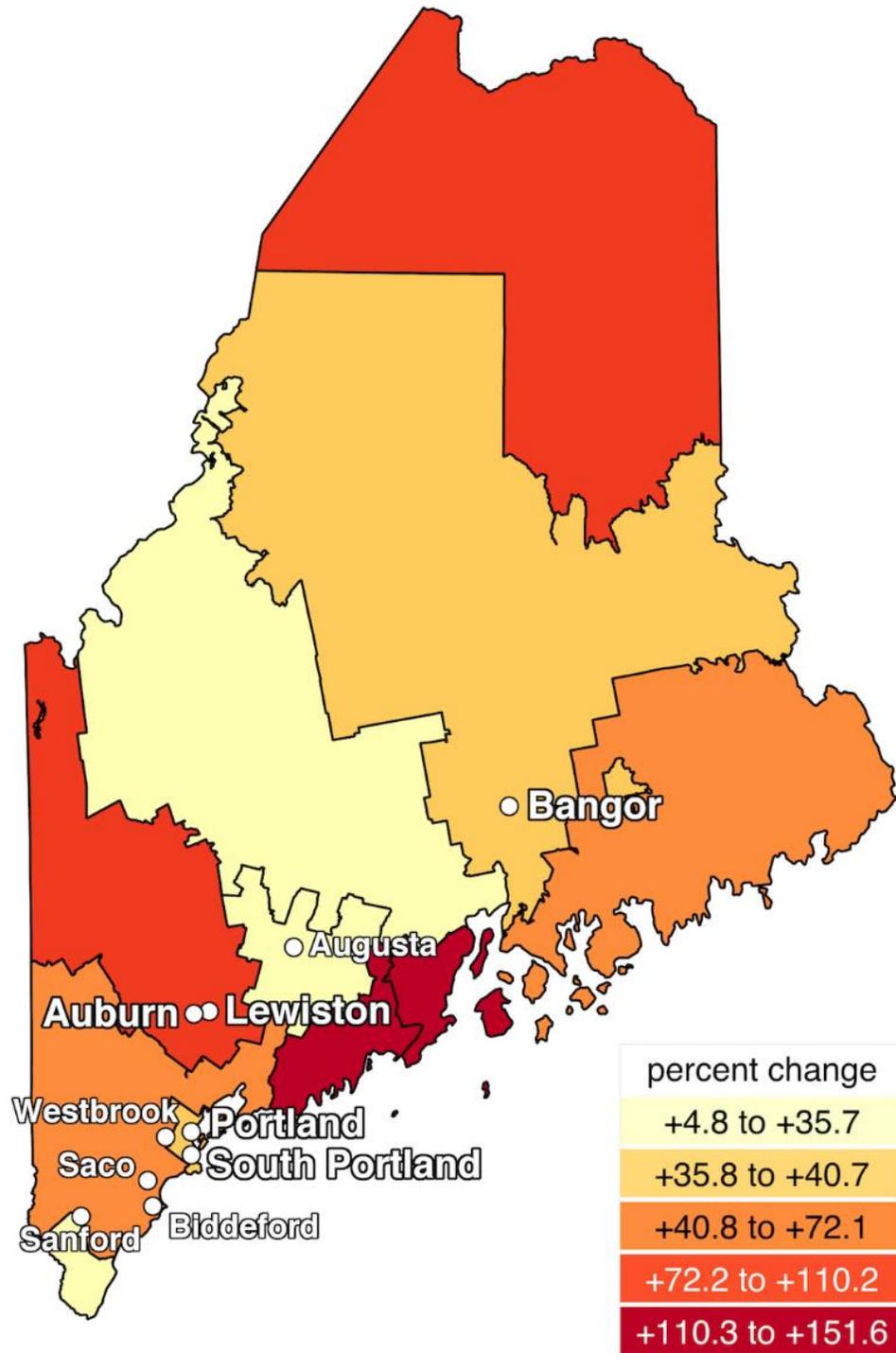
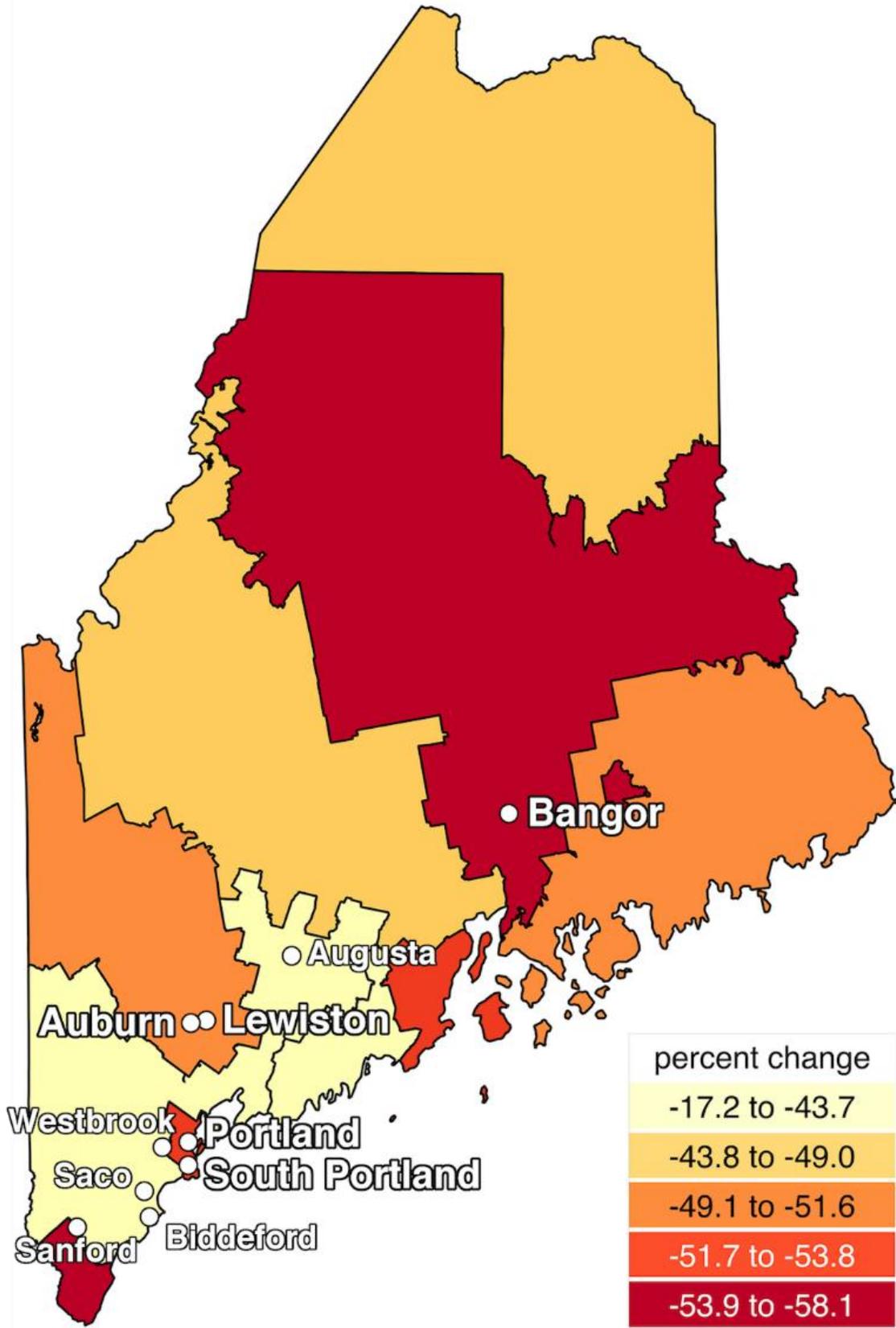


Supplemental Figure 1. Heat map depicting the increase from 2012 to 2017 in buprenorphine (A) or decrease in hydrocodone (B) as reported to the Drug Enforcement Administration by 3-digit zip code.





Supplementary Appendix. Discussion regarding the finances, operation, and potential improvements of the Diversion Alert Program (DAP) with Herbert Rexall, PharmD (hebetsrx@gmail.com), July, 2018. EHR: Electronic Health Records; PDMP: Prescription Drug Monitoring Program.

Question 1) What was the annual operating budget for the DAP?

Answer 1) The 2018 budget is below.

Diversion Alert Annual Budget Estimating 2018

Cost Description	Annual	Budget Justification Explanation
Payroll		
Executive Director	39,000.00	1 Director at 30 hours/week (\$25.00/hour)
Program Assistant	15,600.00	1 Program Assistant at 20 hours/week (\$15.00/hour)
Outreach/Education Coordinator	20,800.00	1 Coordinator at 20 hours/week (\$20.00/hour)
Payroll Taxes	3,048	12.0%
STAFFING TOTAL:	84,448.00	
Purchased Services		
Membership Dues	2,000.00	ME Association of Non-Profits, grants.gov, Div Alert domain fee, DA trademark fee, charitable org lic. Fee and misc. membership fees
Cell Phones	1,440.00	Cell phone for Executive Director, Landline for program assistant
Internet	600.00	Internet and main office location
Evaluation	1,250.00	Cost for Online Survey Program (\$450); Online project task tracking program (\$800)
Web Support	1,000.00	Changes to database, website updates
Outreach/Education	15,000.00	Materials to promote Diversion Alert; webinar development and promotion; outreach to providers; outreach to law enforcement; cost of booth space at conferences to promote
Insurance	8,200.00	Director's & Officers Insurance \$6500, Workman's Comp, Liability
Accounting	2,000.00	Monthly subscription to Quickbooks payroll (6.41/month), Annual subscription to payroll service (423), Annual Review (1,500)
Legal	1,000.00	Legal services, accountant fees
Printer Lease	0.00	Monthly printer lease fee
PURCHASED SERVICES TOTAL:	32,490.00	
Supplies		
Postage and Mailing Supplies	2,000.00	Cost to send two promotional mailings in Maine
Printing and Copying	500.00	Cost to print inserts, brochures, and promotional mailings
Office Supplies	1,000.00	Misc. supplies (pads, pens, paper clips, folders)
Computer/Software	800.00	Monies to cover a computer and software should a computer if needed
SUPPLY TOTAL:	4,300.00	
Travel		
Mileage	4,000.00	Travel to facilitate and promote Diversion Alert and travel to state conferences as needed
Conference, Meeting	3,000.00	Expenses associated with travel to meetings, conferences, training events to promote Diversion Alert
TRAVEL TOTAL:	7,000.00	
SUBTOTAL	128,238.00	
Overhead/benefits	32,059.50	25% of Diversion Alert Expenses
TOTAL ANNUAL EXPENSES	160,297.50	

Question 2) How much do you think it would cost for another state to start their own DAP?

Answer 2) The budget (above) provides a good starting point for start-up costs. The major difference will be the up-front costs associated with initial establishment of relationships with the various law enforcement agencies and training they will require to report the data in a uniform manner. As a result, labor costs will be higher in the initial stages and vary greatly with regard to how many precincts will require training. There will also be initial programming and web design fees in the initial stages. Marketing expenses will also require a greater initial commitment if the program is to be successful. It is not unreasonable to expect expenses to be 1.5-2x greater in the programs first year and perhaps even second year. Larger states may want to phase in the program one county at a time.

As you can see from the budget, many of the costs are fixed (dues, subscriptions, software/hardware, etc). These would not markedly change for more populated, or geographically larger states. A geographically larger state would experience greater travel expenses (greater distance) as would a more populous state (more stops). Travel expenses have never been a large driver of overall costs for DAP. The greatest increase in expense for a more populated state would revolve around the labor hours required to manage the law enforcement relationships and database. The costs associated with the manipulation and incorporation of the data does not have to be significant if the data entry at the precincts interfaces directly with the DA database (similar to pharmacy-PDMP integration).

Question 3) Any other information regarding the budget?

Answer 3) Different organizational structures may present opportunities for reduced costs. For instance, if a state were to incorporate DAP as a component of an already existing state program, they could reduce fixed costs, leverage state resources, eliminate the need to carry non-profit D&O's insurance, share employee's and reduce supply costs.

Alternatively, a PDMP provider (like Apriss), could make a market decision to incorporate DA data as an upgrade to its PDMP at an additional price to its customer. This may provide an additional revenue stream to the PDMP provider. These organizations already possess the data analytics savvy to potentially create/incorporate this add-on at a very low cost to themselves. The challenge for the PDMP would be the establishment of the relationships with the law enforcement agencies. In this for-profit model much of the work is actually performed by the precincts who may be less willing to do this additional work for free under this structure.

Question 4) How expensive would it be to integrate the DAP with a PDMP?

Answer 4) I was not able to get any solid figures on integration with a PDMP. Sources familiar with healthcare data integration have told me the costs associated with developing this interface would not be significant. However, this is no guarantee that the cost to the end user won't be significant if the PDMP firm decides to charge a premium for this integration. An alternative to full integration could be a weblink on the PDMP search result directing the PDMP user to the DAP website. When a healthcare provider performs a PDMP search on a patient with a recent arrest the result could have a small red box flashing that says "recent drug related arrest" "click here for more information". The provider would then agree to a quick disclaimer acknowledging that they understand that this is not a conviction. After that they would be directed to the Diversion Alert webpage containing the arrest data for that patient.

Question 5) How much to integrate the DAP with electronic health records (EHR)?

Answer 5) Same answer as #4. The creation of these interfaces and uploads do not represent a major challenge/costs to programmers but what an individual EHR firm decides to charge will be at their discretion. The weblink option posited above may be a better alternative if the interface is not competitively priced.
